ADMINISTRATION OF THE FEDERAL COAL MINE SAFETY ACT

BY JAMES WESTFIELD, H. F. WEAVER, AND C. M. KEENAN

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FOREWORD

This manuscript presents in full the Annual Report of the Coal Inspection Branch, Health and Safety Division, Bureau of Mines, for January 1 to December 31, 1953, prepared and transmitted to Congress by the Secretary of the Interior pursuant to the requirements of the Federal Coal Mine Safety Act. The report covers the first complete calendar year of administering the Federal Coal Mine Safety Act and presents a review of the activities of the Branch since its inception under Public Law 49, 77th Congress, H. R. 2082, which was approved May 7, 1941.

During 1953, the best accident record in the history of the coal-mining industry was achieved, and it is believed that the report reproduced herein contains pertinent information of sufficient importance to be presented as an information circular and be made a permanent record as a Bureau publication.

INTRODUCTION

This report covers the calendar year 1953 and has been prepared and submitted in accordance with the provisions of Sec. 106(a) and Sec. 212(c) of the Federal Coal Mine Safety Act (66 Stat. 692; 30 U.S.C. Secs. 451-483).

During this first full calendar year of operations under the Federal Coal Mine Safety Act, the coal-mining industry of the United States attained the best injury records in its history - improving the former best records (made in 1952) by 91 fatal and 10,020 nonfatal injuries. Whereas, the mandatory provisions of the act were intended and designed to prevent major mine disasters, apparently the effects have reached beyond the scope thereof in reducing mine accidents generally.

BACKGROUND

The Coal Mine Inspection Branch of the Health and Safety Division, Bureau of Mines, was established to carry out the provisions in Public Law 49, 77th Congress, H. R. 2082, approved May 7, 1941. This act has since been amended to be known as Title I - Advisory Powers Relating to Health and Safety Conditions in Mines, under Public Law 552, 82d Congress, approved July 16, 1952, which also includes Title II, Prevention of Major Disasters in Mines. Public Law 552 is known as the Federal Coal Mine Safety Act.

Congress passed this act as a result of public indignation, and the demands for enforcement powers for Federal coal-mine inspectors following a series of seven appalling major coal-mine disasters that occurred between January 18, 1951, and March 27, 1952. One of these, an explosion in the Orient No. 2 mine, Chicago, Wilmington, & Franklin Coal Co., Illinois, on December 21, 1951, caused the death of 119 men.

Under the provisions of Title I, the Secretary of the Interior, acting through the United States Bureau of Mines is authorized and empowered to make, or cause to be made, annual or necessary inspections and investigations in coal mines, the products of which regularly enter commerce or the operations of which substantially affect commerce. The principal functions of the Federal coal-mine inspectors under Title I are to determine the causes of accidents and occupational diseases in coal mines and then endeavor to eliminate or ameliorate them (1) by revealing, through personal conferences with mine personnel, correspondence, and published reports, the unhealthful and unsafe conditions and practices existing in the mines and (2) by recommending practical means for correcting the conditions observed. Title I does not provide any enforcement powers, and, therefore, compliance with the inspectors' recommendations under its provisions is not mandatory; it does give Federal coal-mine inspectors the right to enter coal mines for inspection purposes.

Title I further authorizes and directs the Secretary of the Interior, acting through the Bureau of Mines, to expend the funds made available to him for advancing health and safety in coal mines and for preventing or relieving accidents or occupational diseases therein in such lawful manner as he may deem most effective in the light of the information obtained to accomplish the objects for which such funds are granted. To comply with such directive, the Coal Mine Inspection Branch personnel is conducting Nation-wide safety-educational programs for coal-mine officials and coal-mine workmen. In addition, special studies are made of mine health and safety problems relating to roof control, haulage, ventilation, mine disasters, dusts, explosives, gases, electricity, etc.; the results of such studies and any improved methods determined from them are made available to the mining industry and general public through published reports.

The current National Bituminous Coal Wage Agreement between the United Mine Workers of America and Bituminous Coal Operators provides in part as follows:

(a) Mine Safety Code.

> The Federal Mine Safety Code for Bituminous Coal and Lignite Mines of the United States, adopted pursuant to an agreement dated May 29, 1946, between the Secretary of the Interior and the President of the United Mine Workers of America and promulgated July 24, 1946, is hereby adopted and incorporated by reference in this contract as a code for health and safety in bituminous-coal and lignite mines ---.

(b) Enforcement.

> (1) Reports of Federal Coal Mine Inspectors:- Wherever inspectors of the Federal Bureau of Mines, in making their inspections in accordance with authority as provided in Public Law 49, 77th Congress, find that there are violations of this code and make recommendations for the elimination of such noncompliance, the Operator shall prompty comply with such recommendations, except as modified in paragraph two of this subdivision (b).
>
> (2) Whenever either party to the contract feels that compliance with the recommendations of the Federal mine inspectors as provided above would cause irreparable damage or great injustice, they may appeal such recommendation to the Joint Board of Review as hereinafter provided.

The current Anthracite Wage Agreement between the United Mine Workers of America and anthracite operators provides in part as follows:

Mine Safety Program.

(a) Federal Mine Safety Standards.

> Inspectors of the Federal Bureau of Mines shall make periodic investigations of the mines, and report to the mine management and the United Mine Workers of America any violations of the Federal Safety Standards.
>
> Operators and Mine Workers agree to accept such standards of safety adaptable and practical to the anthracite industry, subject, however, to the right of review by the Director of the Federal Bureau of Mines, upon petition from the Operator or the United Mine Workers of America.

The Federal Mine Safety Code for Bituminous Coal and Lignite Mines of the United States and the Safety Standards for Anthracite Mines have been used as the bases for citing substandard conditions in bituminous-coal and anthracite mines, respectively.

Title II of Public Law 552 is designed to prevent major disasters in mines the products of which regularly enter interstate or foreign commerce or the operations of which substantially affect such commerce, and compliance with its safety provisions is mandatory. However, it applies only to coal mines in which 15 or more individuals are employed regularly underground. To accomplish this, Title II requires that the Director of the Bureau of Mines shall cause an inspection of each such mine to be made at least annually to determine whether an imminent danger described in Sec. 203(a) exists in any such mine, whether any provision of the Mine Safety Provisions of Sec. 209 is being violated in any such mine, or whether any such mine is a gassy mine as prescribed in Sec. 203(d). It further provides that the Director shall make or cause to be made such special inspections of such mines as may be required by Sec. 203(c) and Sec. 206, and such other inspections of such mines as he deems necessary for the proper administration of Title II. Provisions have also been made for joint inspections of mines with representatives of the inspection agency of any State that desires to cooperate and submits a suitable plan for participation.

THE ADVISORY COMMITTEE

Section 108 of Title I, Public Law 552, provides for the appointment of an Advisory Committee composed of not more than six members to exercise consultative functions, when required by the Secretary of the Interior, in connection with the administration of Title I. The following persons constitute the present members of the Committee:

Thomas Kennedy, vice president, United Mine Workers of America, Washington, D. C.

W. A. Boyle, assistant to the president, United Mine Workers of America, Washington, D. C.

John T. Jones, president, District 16, United Mine Workers of America, Washington, D. C.

L. C. Campbell, vice president, Eastern Gas & Fuel Associates, Coal Division, Pittsburgh, Pa.

Harry Treadwell, vice president, Chicago, Wilmington, & Franklin Coal Co., Chicago, Ill.

E. C. Weichel, vice president, The Hudson Coal Co., Scranton, Pa.

Meetings of the committee have been held:

Sept. 3, 1941, at Washington, D. C.

Dec. 3, 1941, at Pittsburgh, Pa.

May 12, 1942, at Washington, D. C.

Nov. 5, 1942, at Washington, D. C.

Jan. 28, 1946, at Washington, D. C.

Oct. 3, 1950, at Washington, D. C.

SUMMARY

Following is a brief résumé of some of the most recent activities of the Coal Mine Inspection Branch that have had a favorable effect on health, safety, and injuries at coal mines:

1. There were approximately 7,600 active coal mines in the United States during 1953. In all, 62,047 regular Federal inspections of coal mines have been made since Public Law 49 became effective in May 1941; 8,231 of these inspections were made during 1953.

2. The revised Coal Mine Accident Prevention Course for Supervisors was introduced in the coal-mining industry by the Bureau of Mines on March 1, 1948. Since that date, 18,509 supervisors and those aspiring to official positions have completed such training conducted by personnel of the Coal Mine Inspection Branch.

3. The revised Coal Mine Accident Prevention Course for Miners was introduced in the coal-mining industry by the Bureau of Mines on January 1, 1947. Since that date, 84,019 mine workers have completed such training, including 1,665 in special on-the-job classes, conducted by Coal Mine Inspection Branch personnel assigned temporarily to educational work. In addition, 1,537 men completed specialized training in the maintenance, use, and limitations of permissible flame safety lamps to qualify them to make tests for gas in accordance with the provisions of Sec. 209(d)(9) of the Federal Coal Mine Safety Act.

4. A short Coal Mine Haulage Safety Course was introduced in the coal-mining industry on April 1, 1951, by the Bureau of Mines, and subsequent to that date, 113,758 haulage employees and others completed such training conducted by Federal coal-mine inspectors.

5. A short Coal Mine Roof Control Course, designed to impress upon mine officials and workmen the need for more adequate roof-control measures and to make all concerned more roof-control conscious, was initiated by the Bureau of Mines on May 1, 1951. This course is very popular, and to date has been completed by 197,707 persons.

6. Organizational work to extend the benefits of The Holmes Safety Association is meeting with enthusiastic support from the States, mine operators, and mine workers.

7. The Federal Mine Safety Code for Bituminous Coal and Lignite Mines of the United States was originally issued by the Director of the Bureau of Mines on July 24, 1946, after consultation with management and labor representatives of the coal-mining industry. The code has been used by Federal coal-mine inspectors during their inspections of bituminous-coal and lignite mines as a basis for determining the existence of unhealthful and unsafe conditions and practices in these mines. A revised code was issued by the Secretary of Interior on October 8, 1953, following further consultations with representatives of management and mine workers. The agreement of May 29, 1946, between the Secretary of the Interior, acting as Coal Mines Administrator under authority of Executive Order 9728, and the United Mine Workers of America covering bituminous-coal and lignite mines in Government possession, charged Federal coal-mine inspectors with the responsibility of making periodic investigations of the mines and reporting to the Coal Mines Administrator any violations of the Federal Mine Safety Code. These inspectors were active in making prompt investigations of hazardous mines that had been closed by order of the Coal Mines

Administrator to determine whether enough improvements had been made to allow the mines to reopen. Federal coal-mine inspectors also had authority to close mines they found to be imminently dangerous, but such authority under Executive Order 9728 was removed on June 30, 1947, when Government control of the mines was terminated.

8. The Safety Standards for Anthracite Mines were prepared by personnel of the Bureau of Mines and have been used by Federal coal-mine inspectors as a basis for determining unhealthful and unsafe conditions and practices during their inspections of the anthracite mines of Pennsylvania. These standards were also revised and issued by the Secretary of the Interior as the Federal Mine Safety Code for Anthracite Mines of the United States on October 14, 1953.

9. Public Law 328 - 80th Congress, Chapter 450 - 1st Session, effective for 1 year following its approval on August 4, 1947, required the Secretary of the Interior, acting through the Director of the Bureau of Mines, to submit quarterly reports to the Congress of the United States with respect to the conditions of all bituminous-coal and lignite mines inspected by Federal coal-mine inspectors, all recommendations and notifications sent to the State agencies, and action taken by such mine owners, operators, and the State agencies with respect to his findings and recommendations.

10. Introduction of the bolting method of roof control to the coal-mining industry by the Bureau of Mines in 1948 is a major contribution toward reducing coal-mine accidents. The success of this new method of roof control shows that it is likely to surpass the use of rock dust as a means of preventing loss of life and serious injuries in coal mines. Certain mining engineers and coal-mine inspectors have been especially trained in mine-roof control and roof bolting, and they advise mine operators whether bolting is practical in their mines and, if so, the proper plan of bolting to follow.

11. To further intensify the attack on roof-fall injuries, a program of research and investigation by Bureau of Mines engineers is being arranged to develop mobile or portable devices for use at working faces to protect workmen in these areas where most roof-fall accidents occur.

12. The advent of roof bolting brought with it a health hazard from dusts produced during drilling in roof rock. The Bureau has been active in eliminating this hazard by cooperating with manufacturers of mining equipment in designing permissible dust collectors that may be used in lieu of water to allay the dust at its source. Bureau of Mines Schedule 25, Procedure for Testing Dust Collectors for Permissibility for Use in Connection With Rock Drilling in Coal Mines, became effective January 23, 1952, and was later amended on July 23, 1952. Several dust collectors have met these requirements and have been approved for use in coal mines under Schedule 25.

13. Federal coal-mine inspectors began investigating all coal-mine fatalities on February 10, 1950. The reports of these investigations are made available to the industry, and the information in them is summarized and published annually with the hope that it will be helpful in preventing accidents in coal mines.

14. On October 2, 1953, a program was inaugurated to have personnel engaged in coal-mine inspection work collect detailed information on dust conditions and dust-control practices in each coal mine inspected. This material is used to assist the Chief, Health Branch, in assembling such information to determine the extent that occupational disease hazards exist in the Nation's mines as a result of exposure of workmen to dust-laden atmospheres.

15. Other special studies covering roof control, explosives, gases, fires, explosions, mining, electricity, haulage, ventilation, and control of atmospheric dusts are being made continually as part of the health and safety program set up under the Federal Coal Mine Safety Act. Reports of findings and recommendations are made available to the coal-mining industry.

16. Since 1947, personnel of the Bureau of Mines has assisted in preparing proposed revisions of the coal-mining laws of 12 States. The Bureau of Mines will continue to furnish this service to any agencies directly concerned with improving State mining laws, such as labor organizations, coal-operators' associations, and State officials.

17. In response to letters from the Secretary of the Interior to the Governors of coal-producing States and personal contacts by field personnel, State-participation plans for joint State-Federal coal-mine inspections, as provided for under Sec. 202(b) of Title II, Federal Coal Mine Safety Act, have been approved and are in effect in Alaska, North Carolina, North Dakota, Oklahoma, Washington, and Wyoming.

18. Personnel of the Coal Mine Inspection Branch takes an active part in National, regional, and local safety organizations throughout the coal-mining areas.

19. Coal-mine inspectors and engineers of the Branch have served on foreign duty in response to requests from other Federal agencies. This provides such agencies with the technical knowledge and wide experience of these experts, and the assignees have the opportunity to add to their fund of knowledge and make pertinent information available to the mining industry in this country.

20. The Coal Mine Inspection Branch has entered into a cooperative agreement with the Wage and Hour and Public Contracts Divisions of the Department of Labor, whereby the Bureau of Mines field office promptly notifies the regional office of the Wage and Hour and Public Contracts Divisions of disaster hazards in mines that are not covered by the mandatory provisions of Title II.

The coal mines in the United States are in better condition generally from the standpoint of health and safety than at any other time in the history of the industry; however, much remains to be done before the conditions in many mines can be considered even fairly satisfactory.

The enactment of the Federal Coal Mine Safety Act, July 16, 1952, affords under Title II limited enforcement powers to the Federal coal mine inspectors with respect to certain safety provisions that might cause or lead up to a major disaster in underground mines that regularly employ 15 or more men underground. However, the act is not designed to and prescribes no mandatory provisions to prevent the so-called day-to-day accidents, which result in more than 90 percent of the coal-mine fatalities, or to prevent accidents in mines that employ regularly less than 15 men underground, which, as a group, usually have high accident-frequency rates. This large field is left to the cooperative efforts between the Federal Bureau of Mines, the State agencies, employers, and employees. The enforcement of rules and regulations in the field of day-to-day accidents, safety, health, and welfare is clearly left within the jurisdiction of the several States.

Experience in administering the provisions of Title II has been too limited to formulate in detail desired amendments to the act at this time. However, there is no doubt that much more can be accomplished if the mandatory safety provisions of the act are extended to cover mines that employ regularly less than 15 individuals underground, which, as a group, are poorly regulated. This is borne out by the fact that 62 percent of the inspection reports on these mines indicated dangers of a serious nature that were not corrected promptly, and only 15 percent of all the dangerous conditions reported were being corrected during the period covered by this report.

The 1953 records of fatal and nonfatal injuries for the coal-mining industry are the best ever attained. However, these can be improved by constant prodding, proper training, effective planning, determined cooperative efforts, and by compliance with State Laws, Federal Mine Safety Codes, and the provisions of the Federal Coal Mine Safety Act.

EMPLOYMENT OF PERSONNEL

Coal-mine inspectors, electrical inspectors, and engineers of the Coal Mine Inspection Branch are selected from the Civil Service register, and applicants must meet the rigid requirements set up by the United States Civil Service Commission before their names can be included in the register.

The current requirements for the several grades of Federal coal-mine inspectors are as follows:

United States Civil Service Commission Requirements for Federal Coal Mine Inspectors

Written Description of Some Phase of Coal Mining

Applicants must submit with their application a 300-word description of some phase of coal mining, such as the ventilating system, haulage system, or timbering methods, used in a mine familiar to the applicant. The description must be prepared by the applicant, and he must certify in his own handwriting that he received no assistance in composing it. Applicants who fail to submit this written description, or who submit an unsatisfactory one, or who submit statements copied from texts or other sources of which they are not the authors will receive no further consideration under this announcement.

Experience

Applicants must show, as a minimum, the quality and amount of experience prescribed hereafter, unless they substitute education for experience (see section on Substitution of Education for Experience following). To establish eligibility in any grade, at least 1 year of the required experience for that grade must have been acquired during the 4 years immediately preceding the date of filing application.

GS-9, $5,060 - Six years of progressive experience in practical coal mining, of which at least 2 years must have been specialized experience in coal-mining operations of medium size, which involved responsibility for providing adequate modern safety and health programs in a position of at least the responsibility required of a mine superintendent, mine foreman, mining engineer, or safety inspector. The nature of the experience must have been broader than that of a fire boss, mine examiner, or section foreman and must have demonstrated the ability to perform important coal-mine-inspection work under general supervision.

GS-11, $5,940 - Seven years of progressive coal-mining experience of which 3 or more years must have been specialized experience, which required supervision of

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difficult, important, and responsible work, subject only to general supervision and review, in a position of at least the responsibility required of a mine superintendent, mine foreman, mining engineer, or safety engineer. The experience must have included the direction, application, and enforcement of modern coal-mine safety and health programs. This experience must also have demonstrated that the applicant has (1) a thorough knowledge of the basic principles applicable to modern programs for promotion of safety and health in coal mines; (2) the resourcefulness, initiative, and ability to perform, direct, and coordinate moderately large-scale mine-inspection work of considerable difficulty; and (3) administrative ability, tact, and judgment necessary in promoting programs for improved safety, health, and working conditions in coal mines and in application of mine safety regulations.

GS-12, $7,040 - Eight years of progressive experience in the various operations necessary in development and production in coal mines, including at least 4 years of difficult, important, and responsible specialized work, which was subject to only a general administrative supervision, in a capacity such as direct supervisor. This work must have included full responsibility for direction and application of modern coal-mine safety and health programs. This experience must have demonstrated that the applicant has (1) a thorough knowledge of the basic principles applicable in modern programs for promotion of health and safety in coal mines; (2) the resourcefulness, initiative, and ability required in a position of at least the responsibility of mine manager, mine superintendent, mining engineer, or safety engineer; (3) the ability to perform, direct, and coordinate large-scale mine-inspection work of unusual difficulty; and (4) administrative ability of a high order along with the tact and judgment necessary to administer safety regulations and to conduct important conferences with interested parties, such as coal-mine operators, labor organizations, and the general public on matters related to safety and health of workers engaged in coal mining.

Provisions of Law

Section 109, Title I, of the Federal Coal Mine Safety Act under which these positions are established provides:

> That in the selection of persons for appointment as coal-mine inspectors no person shall be so selected unless he has the basic qualification of at least 5 years practical experience in mining coal, and is recognized by the United States Bureau of Mines as having the training or experience of a practical mining engineer in those essentials necessary for competent coal-mine inspection.

The provisions of law quoted above are made a part of the requirements of this examination. Persons whose qualifications are not such as to receive the recognition of the United States Bureau of Mines as required by law cannot be accorded an eligible rating in this examination. The nature of each applicant's experience and the required degree of ability will be carefully determined before eligibility and rating are decided. Experience will be evaluated on the type, size, and difficulty of operation in mines in which the applicant has had supervisory responsibility.

Substitution of Education for Experience

Successfully completed course of study in engineering at an accredited college or university may be substituted for part of the required general experience on the basis of 1 year of education for 6 months of experience. Such substitution will be limited to 1 year of required general experience in GS-9 grade and to 2 years of required general experience in the GS-11 and GS-12 grades. In each case, however, the applicant must show the total required amount of specialized experience.

The successful completion of college work in nonaccredited institutions will be accepted on the same basis as indicated for accredited colleges under the requirements for the position, provided that such institutions give instruction of definitely collegiate level and that the State university of the State in which the institution is located accepts the courses and gives advanced credit for them. (In those States where there is no State university, the evaluation and acceptance of college credits as made by the State department of education will be accepted.)

Ability to Drive Automobile

Applicants must give evidence that they can operate an automobile. Possession of a valid automobile operator's license in the State of legal residence of an applicant will be accepted as evidence.

Citizenship

Applicants must be citizens of or owe allegiance to the United States.

Age

Applicants must not have passed their 48th birthday on the date of filing application.

Physical Abilities

Applicants must be physically capable of performing efficiently the arduous duties of this position. They must be free of such defects or diseases as may constitute employment hazard to themselves or endanger fellow employees or others. They must be capable of sustained physical exertion for 6 to 8 hours per day under such hazardous conditions as traveling over rock falls, on steep pitches, in adverse atmospheric conditions, and under low roof where it is frequently necessary to crawl on the hands and knees. Inspectors entering a mine to make an inspection normally carry equipment that weighs up to 20 pounds. In emergencies following a mine disaster, they may be required to work for several 2-hour periods a day carrying mine rescue apparatus, which weighs about 40 pounds. Arms and legs must function sufficiently to permit the applicant to perform the duties described above. Vision must be at least 20/50 Snellen in one eye and 20/70 in the other, without glasses. The ability to distinguish basic color is essential. Hearing, with or without a hearing aid, must be acute enough to enable the applicant to hear ordinary conversation at 20 feet. These standards must be met by all applicants; however, certain requirements may be waived for veterans who can demonstrate ability to perform the duties efficiently and safely.

In view of the strenuous physical exertion required for this position, hernia (whether or not supported by truss), organic heart disease (whether or not compensated), varicose veins (unless slight), serious deformities or disabilities of extremities (including weak feet), mental or nervous disease, chronic respiratory or chronic constitutional disease, or other physical defect that would cause the applicant to be a hazard to himself or to others or which would prevent efficient performance of the duties of the position will disqualify him for appointment.

Applicants will be required to submit a certificate of physical examination upon request, and a check physical examination will be made by a Federal medical officer before the oath of office will be administered at the first post of duty. Persons who are offered appointment must pay their own expenses in reporting for duty. If, upon reporting at the place of assignment, they are found to be ineligible because of physical defects, they cannot be appointed and no part of their expenses in returning home can be paid by the government.

Basis of Ratings

No written test is required. Applicants' qualifications will be rated on a scale of 100 and will be judged from a review of their experience, education, and training and on corroborative evidence. Applicants may be required to present proof of qualifications claimed but should not submit such proof unless it is requested. Exaggeration or misstatement or the submission of a sample of written work that is not the applicant's own will be cause for disqualification or dismissal from the service.

United States Civil Service Commission Basic Requirements for Mining Engineers

Applicants for the position of mining engineer must have completed successfully a full 4-year professional curriculum leading to a bachelor's degree in an accredited college or university or have had 4 years of successful and progressive experience in technical engineering comparable to that which would have been acquired through successful completion of a full 4-year engineering curriculum in an accredited college or university.

Tentative Selection and Probational Appointment

After a coal-mine inspector or engineer has been selected from the Civil Service register for possible employment, he is interviewed by a Bureau of Mines official to determine his fitness for the position. If the interview discloses that the applicant is unsuitable for employment, he is no longer considered for the position. If the applicant is considered favorably and has passed the required medical examination, he is given a 1-year probational appointment. Probationers who do not measure up to Bureau of Mines standards are separated from the service in accordance with Civil Service regulations.

TRAINING OF PERSONNEL

Inspectors and engineers usually are given a 4-week course of intensive training in technical matters and Bureau policy at the Bureau of Mines Central Experiment Station, Pittsburgh, Pa., before being assigned to field headquarters. However, in those instances when one inspector is employed to replace an inspector who leaves the service, the new inspector is given on-the-job training first by accompanying experienced inspectors and completes the 4-week training course at Pittsburgh as soon as enough replacements are employed to constitute a class.

The classwork includes lectures, demonstrations, and laboratory work covering such vital subjects as roof control, haulage, mine rescue training, first-aid training, causes and prevention of mine fires and explosions, mine gases and methods of detection and control, mine electricity, ventilation, explosives, methods of collecting and analyzing dust and air samples, method of conducting a coal-mine inspection, method of preparing inspection and investigation reports, operation of automobiles, and general policy matters.

New inspectors are required to accompany experienced inspectors until they have demonstrated their ability and are authorized by the Director to conduct inspections without immediate supervision. They are admonished to go slowly with their first inspections and to be very careful and thorough so that hazards are not overlooked. The need for thoroughness is emphasized throughout the training period and is reemphasized from time to time thereafter, so that there is no misunderstanding of Bureau policy.

One or more coal-mine inspectors of outstanding ability are assigned in certain field office areas to assist the field officials in supervising the coal-mine inspectors under their jurisdiction. The supervising inspectors accompany the regular inspectors, instruct them when necessary to improve the quality of their work, and submit reports of their observations for critical review and appropriate action.

Coal-mine inspectors and engineers are called upon from time to time to teach the Bureau's accident-prevention courses, to address meetings of persons interested in mine safety, and to confer with groups of mining men - all for the purpose of selling safety. To assure that the inspectors and engineers are better equipped to perform these duties effectively, they have been given a short course of instruction in the conference method of teaching by a nationally known authority on vocational industrial training.

ORGANIZATION

The additional duties and responsibilities delegated to the Bureau of Mines by the Federal Coal Mine Safety Act made necessary the employment of more personnel to properly execute the provisions therein. Accordingly, the Congress appropriated supplemental funds in the amount of $266,000 during the latter part of the fiscal year 1953 to allow the employment of 50 coal mine inspectors, 12 mining engineers, 1 electrical engineer, and 10 electrical inspectors. These persons were employed promptly, and were given the customary 4 weeks training in technical matters and Bureau policy at Pittsburgh before being assigned to field headquarters.

The Congress appropriated $3,700,000 to carry on the work of the Coal Mine Inspection Branch during the fiscal year 1954. This provided for a total force of 273 coal-mine inspectors, 34 mining engineers, 6 mining-electrical engineers, 5 mining-explosives engineers, 10 electrical inspectors, administrative officials, and supporting personnel. A record of employees of the branch is included included in appendix A of this report.

The Health and Safety Division of the Bureau of Mines, of which the Coal Mine Inspection Branch is a unit, is directed by James Westfield, chief; H. F. Weaver is chief of the Coal Mine Inspection Branch. During the fiscal year 1950, the Bureau of Mines was reorganized on a regional basis, and the field personnel of the branch is under the direct supervision of the Regional Directors and their official assistants. The departmental staff is concerned largely with formulating programs, developing standards for carrying out these programs by the field organization, and coordinating all of the division's activities.

The work performed under the Regional Directors is subject to review and suggestions by the Director's staff.

The coal-mine inspectors, electrical inspectors, and engineers of the Branch are headquartered at strategic places in the coal-producing areas in the United States.

INSPECTION PROCEDURE

The Federal Mine Safety Codes are used as the bases for determining unsafe and unhealthy conditions and practices in all coal mines inspected, and the safety provisions of Title II, Public Law 552, are mandatory at all coal mines that employ 15 or more individuals underground regularly.

The standard procedure for inspecting all coal mines (under Title I and Title II), briefly, is as follows: Generally, neither the mine operators nor the miners are notified of an inspection. The regular inspection work may require from a day to several weeks, depending on the size of the mine, the thickness and pitch of coal beds, the system of mining, the degree of concentration of working places, prevalence of hazardous conditions and practices, and other conditions. The inspector is required (a) to inspect the surface plant, every working place in the mine, all active haulageways, entrances to abandoned workings, accessible old workings, airways, escapeways, and other places where men work or travel or where dangerous conditions may exist, electric equipment and installations, haulage facilities, first-aid equipment, ventilation facilities, communication installations, roof and rib conditions, blasting practices, etc.; (b) to make tests for gas and oxygen deficiency in all mines and to collect samples of mine air and mine dusts for chemical analysis, if necessary, to determine precisely the conditions with respect to noxious and explosive gases, oxygen content, and coal dust and rock dust.

In multiple-shift operations, the inspector is required to devote part of his time to inspection on each shift, so that hazards are not inadvertently overlooked, and spend enough time at the active working faces to observe, wherever practicable, a complete cycle of operations, including cutting, drilling, blasting, loading, hauling, support of roof, etc.

To assure that the principle of States' rights would be preserved, Title II provides for joint Federal-State inspections when a State desires to cooperate in such activities. The Director of the Bureau of Mines is required by the act to cooperate with the official mine-inspection or safety agencies of the coal-producing States. Title II provides further that any State desiring to cooperate in making joint inspections may submit a State plan for carrying out the purposes of this part of the act. Such plans shall designate an authorized State safety or inspection agency to administer the plan and give assurance that such agency will employ an adequate and competent staff of inspectors, assign its inspectors to participate in inspections in the State under Title II, and make such reports to the Director of the Bureau of Mines as the Director may require from time to time. The Director, however, is required to approve any State plan that complies with the specific provisions. The Director may withdraw his approval and declare such a plan inoperative if he finds that the State agency is not complying with the spirit and intent of any provision of the State plan.

Where a State plan is not adopted, the Federal coal mine inspector is responsible under Title II to take one of two courses of action if he finds certain hazardous conditions during his inspections:

a. The first action involves imminent danger. If a Federal inspector finds danger that a mine explosion, mine fire, mine inundation, or man-trip or man-hoist accident will occur in a mine immediately or before the imminence of such danger can be eliminated, he issues a written order requiring the operator of the mine to cause all persons, except certain public officials and those specifically permitted by law to correct the conditions, to be withdrawn from and debarred from entering the area described in the order. The operator is not permitted to resume normal operations in such an area until: (1) The conditions specified in the order are corrected to the satisfaction of three duly authorized representatives of the Bureau of Mines appointed by the Director after receiving an application from the operator for annulment or revision of such order and the order has been annulled or revised by the Director, or (2) the Federal Coal Mine Safety Board of Review finds that, after receiving an application from the operator for annulment or revision of the order and after a formal hearing, the condition described in the order was erroneous or no longer exists.

b. The second action involves one or more violations of the Mine Safety Provisions set forth in Sec. 209, Title II. If a Federal inspector finds that any such mine-safety provision is being violated but that there is no immediate danger that an explosion, fire, inundation, or man-trip or man-hoist accident will occur in such mine immediately or before the imminence of such danger can be eliminated, he is required to issue a written notice to the operator, giving the operator a reasonable time to correct the violation. If, upon making his check (special) inspection to determine whether the violation has been abated in the time originally specified, the Federal inspector finds that the violation has been totally abated, he issues another written notice to that effect. If the inspector finds that the operator should be given additional time to abate the violation, he grants an extension of time in writing. If, however, the violation is not abated and the Federal inspector finds that circumstances, such as obvious lack of effort by the operator to correct the condition, do not justify granting an extension of time, he issues a written order requiring the operator to cause all persons, except certain public officials and those specifically permitted by law to correct the conditions, to be withdrawn from and debarred from entering the area described in the order. Here again, the operator is prohibited from resuming normal operations in the affected area until the order is annulled or revised by the Director of the Bureau of Mines or by the Federal Coal Mine Safety Board of Review under the same procedure as described for imminent dangers. Any final order by the board is subject to judicial review by the United States Circuit Court of Appeals, upon notice of appeal by the Director or the operator.

Where a State plan has been adopted, mines shall not be inspected by a representative of the Bureau under Title II unless a State inspector participates in such inspection in accordance with such plan, except where, in the Director's judgment, an imminent danger is deemed to exist and participation by a State inspector would unreasonably delay such inspection. If a Federal inspector issues a withdrawal order citing an imminent danger under Sec. 203(a) and a State inspector did not participate in the inspection on which such order is based, the mine operator may request the State agency to assign an inspector to inspect the mine, which must be complied with promptly.

Title II further provides that no withdrawal order shall be issued when an operator fails to abate a violation of a Mine-Safety Provision, if an imminent danger under Sec. 203(a) is not present, at the expiration of the time originally set or extended for abatement at a mine in a State in which a State plan is in effect unless a State inspector participated in the inspection and concurs in such order. In the event that the State inspector does not concur in such order, the

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operator or the State or Bureau representative may apply to the chief judge of the United States District Court for the district in which the mine is located for the appointment of a qualified independent inspector to inspect the mine. If, after such inspection, either the independent or the State inspector concurs in the order, it shall be issued.

Withdrawal orders issued with respect to a mine in a State in which a State plan is effective are not subject to review by the Director, but shall be subject to review by the Federal Mine Safety Board of Review.

In response to requests, sample plans for State participation were drafted and submitted to Alabama, Arkansas, Kansas, Montana, North Carolina, Oklahoma, Washington, and Wyoming to serve as guides in formulating plans for submission to the Director for his approval. On September 29, 1952, a plan submitted by Wyoming was the first to be approved by the Director. Since then, five additional plans have been approved. The States involved and the effective dates of the plans are: Washington, December 17, 1952; Oklahoma, February 13, 1953; North Dakota, February 16, 1953; North Carolina, March 27, 1953; and Alaska, June 15, 1953. As of December 31, 1953, 34 joint State-Federal inspections had been made in Wyoming, 21 in Washington, 19 in Oklahoma, and 2 in Alaska (see appendix B, table 1).

Each coal-mine inspector is assigned a district comprising mines that he inspects regularly. This procedure was adopted in 1948 and has resulted in a greater personal interest on the part of the inspector to have the mines under his jurisdiction in the safest condition possible and to keep accidents in them to a minimum. Inspectors are responsible for devising ways and means of reducing accidents in their respective districts, and they are required to improve the effectiveness of their inspections by:

a. Determining the outstanding causes of accidents at the mine to be inspected; this information is used during the inspection as a guide in detecting hazards.

b. Discussing observed hazards and means of correction with the accompanying official at the time the hazard is discovered, with the mine-safety committeemen when feasible, and with high company officials when a conference can be arranged.

c. Enlisting the cooperation of labor, management, State inspection personnel, and all other safety-promotion agencies.

d. Becoming acquainted with management, the officials of the mine workers' organization, and the mine safety committeemen.

e. Attending local union meetings occasionally to discuss safety with the members and endeavoring to promote cooperation in accident-prevention work.

f. Participating in mining institutes, Holmes Safety Association chapters and councils, and other agencies dedicated to the promotion of mine safety.

g. Assuming a personal interest and a definite personal responsibility in preventing accidents.

h. Investigating all fatal coal-mine accidents in their respective districts.

i. Assisting in rescue, recovery, and investigative work following mine disasters.

j. Assisting mine officials to improve the methods of operation with a view toward greater efficiency, economy, and safety.

k. Conducting training in first-aid and mine rescue procedures and officiating at first-aid and mine rescue contests.

PROCEDURE FOR PREPARING AND DISTRIBUTING COAL MINE INSPECTION AND INVESTIGATION REPORTS

A preliminary report is prepared by the inspector in accordance with standard regulations following completion of each regular inspection of a coal mine that employs less than 15 men underground or a strip mine, hereafter called Title I mines.

The preliminary report, indicating unsafe conditions and practices considered of primary importance, is prepared by the inspector and posted by him at the mine within 1 day following completion of the inspection. Typed copies of the preliminary reports are distributed by the field offices of the Bureau of Mines to the mine officials, the State mine-inspection agency, the district and national offices of the mine workers' organization having jurisdiction at the mine, the Washington office of the Bureau of Mines, and the Geological Survey if the mine is on the public domain or Indian land.

Preliminary reports are not prepared following inspections of mines that employ regularly 15 or more men underground, hereafter called Title II mines. In lieu thereof, withdrawal orders, citing imminent dangers under Sec. 203(a), Title II, or notices, citing violations of Sec. 209, Mine Safety Provisions, that do not appear to be imminent, as provided under Sec. 203(c), or an order classifying the mine gassy under Sec. 203(d), are issued by the inspector to the mine operator during or at the completion of an inspection, and copies are posted on the mine bulletin board. Typed copies of such notices or orders are distributed by the field offices of the Bureau of Mines to the mine officials and the same agencies that would receive copies of the preliminary reports.

A final report on each inspection, prepared promptly by the inspector, contains a general description of the property and of conditions and practices observed during the inspection. All unsafe conditions and practices are recorded in detail, and proper recommendations are made to correct them. Where applicable, violations of the safety provisions of Title II that are observed during the inspection are cited, and the action taken to have the violations abated is indicated. Results of chemical analysis of dust and air samples collected during the inspection are listed in the report to provide additional information with respect to conditions at the mine. Substandard and dangerous conditions that are eliminated during the inspection and between inspections are presented also.

Final reports on inspections of coal mines are prepared, reviewed, and mimeographed in the field offices and are distributed from there to management, the State mine-inspection agency, the national and district offices of the mine workers' organization, the Joint Industry Safety Committee (bituminous-coal mines that are affiliated with the U.M.W.A.), the Washington office of the Bureau of Mines, and the Geological Survey if the mine is on the public domain or Indian land.

Enough reports are reviewed in the Washington office after they have been transmitted to all concerned to assure that the rules for preparing and distributing reports are being followed and to obtain information on serious hazards and violations of the safety provisions of Title II.

A press release covering salient features of certain reports is prepared and sent to the newspapers in the area where the mine is situated.

Posting and distributing the reports, writing press releases covering them, and filing the reports in the Bureau of Mines field and departmental offices for public inspection constitute compliance with that part of the act requiring publication and dissemination of findings.

Reports covering the investigations of all fatal coal-mine accidents, of major and minor coal-mine disasters, and of mine fires and ignitions that are not of disaster proportions are prepared, and they are distributed by the field offices to all agencies and persons that ordinarily would receive copies of the regular inspection reports.

FOLLOWUP PROCEDURE

Under the mandatory provisions of Title II, special inspections are made by an inspector at the expiration of time periods set or extended as reasonable for abatement of violations of Sec. 209, and, in instances where men have been withdrawn, upon orders from the Director of the Bureau, in response to a request from the operator, to determine whether the violations have been totally or partly abated.

The inspector can order the operator to withdraw men from the mine or a portion of a mine summarily if an imminent danger is deemed to exist or if the operator has not made a reasonable effort to abate a violation of Sec. 209 at the expiration of the time that has been set or extended for abatement.

Sec. 205, Title II, provides for the creation of a Federal Coal Mine Safety Board of Review to hear and determine applications filed pursuant to Sec. 207 for annulment or revision of Orders made pursuant to Sec. 203 or Sec. 206. In compliance with these provisions, on August 21, 1952, the President appointed A. U. Miller, C. R. Ferguson, and J. G. Solari to serve as members of the first board. Miller was named chairman. During 1953, E. R. Price, Manager of Coal Properties, Inland Steel Co., was appointed as the operators' representative in place of Solari, resigned, and Edward Steidle, Dean Emeritus, School of Mineral Industries, Pennsylvania State University, replaced Miller as chairman.

Sec. 206 provides that an operator may apply to the Director for annulment or revision of an order issued under Sec. 203. However, where a State-participation plan is in effect, application for annulment or revision of a withdrawal order must be made directly to the Federal Coal Mine Safety Board of Review.

Inasmuch as the Federal coal-mine inspectors have no authority to require compliance with their recommendations made under the provisions of Title I, every reasonable and practical effort is made to get these unsafe conditions and practices corrected. One method is to enlist the cooperation of the State mine-inspection agencies that generally have authority to require the correction of hazards. When an inspector observes unduly hazardous conditions or practices that are not covered by Title II during the inspection of a mine, he informs the local mine officials. If prompt action is not taken to correct the hazards, he so advises the mine safety committeemen and also the Bureau of Mines official in charge, who promptly relays the information to the State mine inspector and the head of the State mine-inspection agency by telephone, confirmed by letter, or by letter only, as the exigencies of the case indicate. In addition, the statement of the hazard and the recommendation for its correction are capitalized in the final report to call special attention to them. Such procedure has resulted in elimination of many very serious hazards in the mines.

The condition of many of the coal mines in the Nation is evident when it is known that 62 percent of all inspections of mines exempted from the provisions of Title II made during 1953 revealed hazards that were serious enough to justify sending special notices to the heads of the State mining agencies. Records regarding serious hazards in coal mines are included in appendix C of this report.

Such followup procedures, undoubtedly, have exerted a considerable influence on the improvement in practices and conditions in many mines and on the favorable reduction in coal-mine injury rates.

It is interesting to note that only two of the 191 orders requiring the withdrawal of men from underground areas have been appealed to the Federal Coal Mine Safety Board of Review, and one of these, issued under a state-participation plan could not be appealed to the Director under the provisions of the act. In each instance where a withdrawal order has been issued and the operator has appealed to the Director of the Bureau of Mines claiming that the dangerous condition was corrected, such appeals have been acted upon promptly, regardless of whether they were received on holidays, Saturdays, Sundays, or after working hours on regular working days. The Bureau is as much interested as the operators in causing no undue delay in reopening mines after violations of the law are corrected. In each instance where, after prompt special investigation by three duly authorized representatives of the Bureau of Mines, the Director verified that the conditions had been corrected, the inspector's order was annulled forthwith, and the mine was permitted to resume normal operation.

During the 18-month period, ending December 31, 1953, that the Federal Coal Mine Safety Act has been in effect, 5 applications for annulment of gassy-classification orders under Sec. 203(d) were made to the Director. Four of these applications were denied, and in one case the order was annulled. Two of the Director's decisions denying annulment were appealed to the Federal Coal Mine Safety Board of Review; one of which was upheld by the Board and the other was reversed. One application for annulment of a gassy classification order that was made directly to the board was denied. One withdrawal order issued under a State-participation plan in accordance with the provisions of Sec. 203(a), citing imminent explosion dangers, was annulled by the Board after finding that the dangers had been eliminated, and the Board revised one withdrawal order issued under 203(c) for failure to abate violations of Sec. 209(d)(9) by extending the time for abatement to permit training enough men in the maintenance, use, and limitations of permissible flame safety lamps to make the required tests for gas. Upon request of the operator, the Bureau provided personnel for this specialized training, at the completion of which the violation was abated and the order was annulled by the Director. (See appendix D.)

REGULAR INSPECTION WORK ACCOMPLISHED

According to a Bureau of Mines survey, 7,615 coal mines were operated more or less regularly during 1953. A tabulation showing the number of coal mines (by types and States) operated in 1953 is included in table 1 of appendix E

Reference to the performance data in appendix E will reveal that:

a. 8,231 regular inspections of coal mines were made during 1953 (table 2).

b. 62,047 regular inspections of coal mines have been made since 1941, when Public Law 49 became effective (table 2).

c. 3,216 of the 4,655 active coal mines employing less than 15 men underground (Title I mines) were inspected during 1953, and the average number of inspections per active small underground mine was 0.9 (table 1 and table 3).

d. 1,688 of the 1,847 active coal mines employing 15 or more men underground (Title II mines) were inspected during 1953, and the average number of inspections per active larger underground mine was 2.0 (table 1 and table 3).

e. 340 of the 1,113 active strip mines were inspected during 1953, and the average number of inspections per active strip mine was 0.3 (table 3).

f. The average time required to make a regular inspection and to prepare the inspection report, including travel time, was 1.8 days for strip mines, 2.1 days for Title I underground mines, and 5.3 days for Title II mines, excluding special inspections (table 4). The average total time to complete an inspection of a Title II mine, including special inspections, is 6.3 days (table 6).

g. 3,622 check (special) inspections required under Title II were made to determine whether violations cited under Sec. 203 had been abated. This represents an average of 1 special inspection and 1 additional man-day inspecting for each regular inspection of a Title II mine. These special inspections cost $123,926.64, an average of $34.21 per special inspection, over and above the regular inspection work (table 5).

During 1953, Federal inspectors reported 67,262 violations of the Federal Mine Safety Codes while inspecting 3,556 Title I mines, an average of 19 violations per Title I mine inspected (see appendix F); 62 percent of the inspection reports on these mines transmitted indicated dangers of a serious nature that were not corrected (see appendix C); and only 15 percent of all the violations reported were corrected (see appendix G).

Federal inspectors reported 24,004 violations of the Federal Mine Safety Codes while inspecting, 1,688 Title II mines, an average of 14 violations per Title II mine inspected (see appendix F); 9 percent of the inspection reports on these mines transmitted indicated dangers of a serious nature that were not corrected (see appendix C); and 46 percent of the violations of the codes were corrected (see appendix G).

A total of 7,928 violations of the mandatory mine safety provisions of Title II of the Federal Coal Mine Safety Act were observed while making 3,664 inspections of these mines during 1953, but 4,335 or 55 percent of these violations were corrected before the inspections were completed; 3,593 original notices (Form B) were issued at 1,139 mines granting reasonable time to abate violations that required more time to correct. Subsequent special inspections revealed that 3,827 violations had been totally abated, and 1,313 notices (Form C) were issued granting additional time for abatement of others. About 95 percent of the violations for which notices were posted were being abated at the expiration of the time originally set or the time as extended. Thirty-six withdrawal orders citing imminent dangers under Sec. 203(a) (Form A) were issued at 27 mines during 1953, making a total of 40 such orders at 30 mines since July 16, 1952 (see appendix B table 1 and table 2, for imminent dangers cited by States); 138 withdrawal orders under Sec. 203(c) (Form D) were issued at 65 mines during 1953 for failure to abate violations within a reasonable time, making a total of 151 such orders at 73 mines since July 16, 1952 (see appendix B, table 1 and table 3, for violations cited); and 44 orders (Form B-1) were issued classifying mines gassy under Sec. 203(d) during 1953, making a total of 66 such orders issued since July 16, 1952 (see appendix B).

No violations of the Federal Mine Safety Codes were observed while inspecting 23 Title I mines and 83 Title II mines (see appendix F), and violations of Sec. 209 of the Federal Coal Mine Safety Act were not observed while inspecting 512 Title II mines (see appendix B); 56 of these mines were free of violations of the codes and the act. These mines are identified in tables 1, 2, and 3, appendix H.

Because of the added responsibilities imposed on the inspectors by Title II of the Federal Coal Mine Safety Act and the need for making special inspections at the expiration of periods set for abatement of violations under Sec. 203(b) or 203(c) and special inspections for the Director under Sec. 206(a) and 206(b) to determine whether violations have been abated, the average time required to inspect mines in which more than 14 men are regularly employed underground, including the time required to write reports, increased from 3.8 days during the fiscal year 1952, under Public Law 49, to 6.3 days, including special inspections, during 1953, under Title II (see appendix E table 6).

The Federal Coal Mine Safety Act requires that the Director shall cause an inspection of each mine coming under the provisions of Title II to be made by a duly authorized representative of the Bureau at least annually. However, it is believed essential that these Title II mines should be Federally inspected at least three times a year, that all small underground mines that are not covered by Title II should be inspected at least twice a year, strip mines once a year, and that spot-check inspections should be made (between regular inspections) at those mines where experience indicates lack of compliance with the provisions of the act. These minimum requirements are desirable because the provisions of Title I of the act are purely recommendatory, and Title II contains no penalties for noncompliance with its mandatory characteristics between inspections.

In addition to meeting the foregoing mine-inspection schedule, Federal inspectors are required to perform special duties, such as investigating fatal accidents, making dust surveys, reviewing inspection reports, working in supervisory capacities, assisting with rescue, recovery, and investigative work following mine disasters, teaching the Bureau's accident-prevention classes, and various other jobs. These special assignments are quite essential to comply with the provisions in the Federal Coal Mine Safety Act and to obtain the greatest benefits from the regular inspection work.

A tabulation of the force of inspectors employed on December 31, 1953, is given in appendix I.

SPECIAL WORK ACCOMPLISHED

Although the routine inspections of coal mines and the distribution of inspection reports are primary functions of personnel of the branch, it is realized that the effectiveness of the inspections is enhanced when mine supervisory personnel and mine workmen have enough technologic and practical knowledge of modern concepts of coal-mine safety to recognize an unsafe condition or practice when it exists or is developing and know how to correct it. The opportunity to obtain such knowledge through the Bureau of Mines was not available generally before 1947, principally because funds were not made available for conducting the necessary training.

The need for providing this opportunity is recognized in section 106 of the Federal Coal Mine Safety Act, which authorizes and directs the Secretary of the Interior, acting through the Bureau of Mines, to expend the funds made available to him to advance health and safety in coal mines and prevent or relieve accidents and occupational diseases in mines, in such lawful manner as he may deem most effective in the light of the information obtained under the act to promote the accomplishment of the object for which such funds are granted.

To comply with such directive, the outstanding special work accomplished during 1953 is described hereafter. A tabulation of miscellaneous special work is included in appendix J of this report.

Coal Mine Accident Prevention Course for Miners

The National Bituminous Coal Wage Agreement provides that:

> At each mine there shall be a Mine Safety Committee selected by the local union. The Mine Safety Committee may inspect any mine development or equipment used in producing coal. If the Committee believes conditions found endanger the life and bodies of the mine workers, it shall report its findings and recommendations to management. In those special instances where the Committee believes an immediate danger exists and the Committee recommends that management remove all mine workers from the unsafe area, the operator is required to follow the recommendation of the Committee.

The Anthracite Wage Agreement provides that:

> Mine Committees, acting on the request of individual employees or upon their own personal knowledge, shall have the right to report to management unsafe conditions affecting operations or equipment. In such cases, the Mine Committees shall have the right, accompanied by representatives of management, to make necessary inspections of property or equipment for the ascertainment of actual facts. In the event such conditions, when reported, are not satisfactorily corrected, the Mine Committee shall request action by the State and Federal inspectors.

To assure that members of these committees would be well versed in the provisions of the Federal Mine Safety Codes and thereby be better equipped to recognize unsafe conditions and practices that exist or are developing and to learn the proper means of overcoming them, the Bureau of Mines, in cooperation with the United Mine Workers of America, inaugurated a Coal Mine Accident Prevention Course for Mine Safety Committeemen in January 1947. The Course covers the practical, and some technical, aspects of modern principles of coal-mine safety and requires 20 hours of classroom work. It had such an enthusiastic endorsement by mine-safety committeemen and mine operators that it was decided to extend the enrollment opportunity to all mine workmen. The popularity of the training is attested by the record. From the time the revised training program was begun on January 1, 1947, to December 31, 1953, 84,019 mine-safety committeemen and miners had completed the course. Included in these figures are 1,665 men who completed special on-the-job accident-prevention training, which was initiated at a large eastern coal mine in February 1952. Usually the classes are conducted by Federal coal-mine inspectors who have been especially trained and authorized to carry on instructional work. Approximately 375,000 workmen are employed in the Nation's coal mines.

In addition, 1,077 men in Indiana, 260 in Illinois, and 200 in western Kentucky, making a total of 1,537, received specialized training in the maintenance, use, and limitations of permissible flame safety lamps to qualify them to make proper tests for gas in places where electric machines are operated in face areas in accordance with the provisions of Sec. 209(d)(9) of the act.

Coal Mine Accident Prevention Course for Supervisors

Congress appropriated funds to continue the employment of mining engineers to train coal-mine supervisors in the modern principles of mine safety. The Bureau's Coal Mine Accident Prevention Course for Supervisors requires 40 hours of classroom instruction and covers all technologic as well as practical phases of safety as applied to: Surface facilities; timbering and roof control; transportation, storage, and use of explosives; ventilation and mine gases; coal dust and rock dust; haulage; electricity; safeguarding equipment; fire prevention and control; and other miscellaneous items. The course includes lectures, class discussions, actual demonstrations, and the use of visual aids, such as motion pictures, slides, and blackboard sketches.

This training program has been successful, and from March 1948, when the revised course was first offered, to December 31, 1953, 18,509 coal-mine supervisors and others aspiring to such positions completed the training.

The Holmes Safety Association

Coal-Mine Inspection Branch personnel take an active part in sponsoring and promoting the activities of the Holmes Safety Association, which was established as a branch of the Joseph A. Holmes Safety Association in March 1926.

The objective of the Holmes Safety Association is to arrange and hold safety meetings, conduct safety campaigns, and provide for organized and cooperative effort to:

a. Prevent fatalities and injuries and improve health conditions in the mining and allied industries;

b. Disseminate information on subjects related to promoting health and safety and preventing disasters;

c. Promote training in first aid and mine rescue and recovery operations;

d. Cooperate with existing organizations and agencies having the same objectives;

e. Promote educational, social, and recreational activities in the mining and allied industries.

The Holmes Safety Association does not supplant other plant or mine safety organizations - it rather supplements the work of such organizations by providing a cooperative agency that will coordinate the various objectives.

The Bureau has recently intensified its efforts to expand these activities in mining areas throughout the United States, and, in September 1953, there were

7 councils and 83 chapters active in Pennsylvania, 2 councils and 24 chapters in West Virginia, 1 council and 12 chapters in Utah, and 1 chapter in Louisiana - a total of 10 councils and 120 chapters. This promotional work is continuing and is receiving enthusiastic support from the State and industry officials and representatives of the mine workers. Late in 1953, the West Virginia Department of Mines assigned an employee to work with the Bureau of Mines representative in promoting this work in West Virginia. It is hoped that other States will follow this example.

Investigation of Fatal Coal-Mine Accidents

The Bureau of Mines has investigated major mine disasters since its inception in 1910 as part of its accident-prevention program, and the conclusions drawn from these investigations have been used as a basis for recommending measures to prevent recurrences. The Bureau also has investigated explosions and fires in which less than five or no lives were lost; but before 1950 it was not general practice to investigate fatalities resulting from occurrences other than mine fires or explosions. The Bureau has long recognized the need for a comprehensive study of fatal accidents, but the task was too great for the limited available personnel. On the basis of the improvement in the rate at which fatalities were occurring in coal mines and the increases in inspection personnel provided by Congress in recent years, all fatal accidents have been investigated since February 10, 1950. A report of each investigation is prepared by the Federal inspector, and it is distributed to the same agencies and persons who ordinarily would receive copies of the regular coal-mine inspection report. The report gives the facts about the accident, presents the inspector's conclusions regarding the cause, and includes appropriate recommendations for the prevention of similar occurrences.

The information in the reports covering the investigations of coal-mine fatalities that occurred during the calendar years 1950, 1951, 1952, and 1953 has been condensed and published. It is particularly useful to officials of coal companies and of the mine workers' organizations in planning accident-prevention programs; to safety directors, inspectors, instructors, and supervisors who need such information to carry out their duties more effectively; and to mine workers who must know the causes of accidents to be better able to prevent injury to themselves and their fellow workmen. The ultimate objective is to provide information that will be helpful in preventing accidents.

This is the first time in the history of coal mining that the Bureau of Mines or any other agency or person has assembled, on a Nation-wide basis, detailed reports on the investigations of all fatalities occurring in coal mines of the United States and Alaska. The published reports covering the investigations by Federal coal-mine inspectors during 1953 reveal the following:

1. Falls of roof, face, or rib caused 67 percent of all fatalities occurring underground at bituminous-coal and lignite mines. Human failure was determined to be responsible for 88 percent of such fatalities; a breakdown of human failures showed that management failure accounted for 32 percent, employee failure 32 percent, and joint or undetermined human failure 24 percent. Dangers that could not be foreseen and risks that were unavoidable accounted for 12 percent.

2. Haulage accidents caused 21 percent of the total fatalities occurring in bituminous-coal and lignite mines in 1953. This was a reduction of 6 percent over the 1952 record. Haulage fatalities occurred in 12 different States and the territory of Alaska. The predominant causes of these fatalities were: Stumbling or

falling into moving equipment; contact with roof, cross bars, or other overhead obstructions; and derailments, collisions, and run-a-way equipment. The principal physical hazards were insufficient overhead clearance, defective rolling stock, and lack of adequate blocking devices or derails on haulage roads having steep grades. The major unsafe practices were failure of operators to clear with the dispatcher before entering the haulage road, riding in hazardous positions, and coupling or uncoupling cars in motion. Over 40 percent of the haulage accidents happened at times that some section of Article VII of the Federal Mine Safety Code was being violated. A study of all haulage accidents reported reveals that management was responsible for 28 percent and employee failure 46 percent. Joint failure or undetermined action accounted for 26 percent.

3. A study of all types of fatalities that occurred in the anthracite mines of Pennsylvania in 1953 reveals that management failure was responsible for 31 percent, employee failure 24 percent, and joint or undetermined human failure 36 percent. Unforeseen dangers and unavoidable risks accounted for 6 percent and unknown causes the remaining 3 percent.

Roof-Control Work

Accident statistics have indicated for years that falls of roof and coal cause more than half the fatalities that occur in coal mines, and this record has challenged all the forces interested in improving the accident rates in the coal-mining industry. The Bureau of Mines has done a considerable amount of research work with respect to mine-roof control when funds for it were available, but as late as 1948 no person or agency produced any new or improved means of satisfactorily solving the problems presented by this No. 1 killer of mine personnel. The Bureau has realized that, to reduce coal-mine injuries to a greater extent, it would be necessary to find better methods of roof control; the Bureau's efforts in that direction finally culminated in the general introduction in the coal-mining industry in 1948 of a new means of roof control known as roof bolting. The basic principle involved is to prevent the initial sag in exposed roof strata by converting the strata into a rigid beam with steel bolts set in holes drilled in the roof rock. The bolts must be installed as soon as the roof is exposed by the normal process of mining.

After enough experimental work was conducted to prove the practicability and safety of bolting under controlled conditions, the method was given wide publicity in Bureau of Mines publications and in the trade journals. To satisfy the demand of mine operators for the Bureau's suggestions for installing roof bolts and to assure that the method would not be condemned as a failure because of improper installations, the Bureau trained certain Federal coal-mine inspectors and engineers to qualify as expert consultants in roof bolting, and such experts are now headquartered in coal-mining areas where their services are needed. Generally, the mine operators obtain the advice and recommendations of the Bureau experts before any bolts are purchased, and some States now require mine operators to obtain a permit from the State inspection agency before roof bolting can be begun. Such wise precautions have contributed much to the success of this new method of roof control.

Before roof bolting is adopted in any mine, the Bureau of Mines recommends the following procedure:

Controlled experiments to determine whether roof bolting is applicable should be made in conformance with the procedures that have been worked out by the Bureau of Mines. Bureau experiments are made under controlled conditions with auxiliary conventional supports during the initial experimentation. After a safe and economical method of bolting is determined, no deviation from this method should be made without undergoing a new experimental period. Also, if roof conditions change radically from those encountered during the initial experimental period, a new experimental period should be undergone.

Federal coal-mine inspectors observe roof-bolting procedures during their regular inspections of coal mines and report deviations from the established plans along with other substandard practices of roof support.

The attitude of mine operators toward roof bolting is described best by saying that, since 1948, when the method was generally introduced to the industry, roof bolts have been installed in 650 coal mines. They are used exclusively in a number of large mines, and, according,to the records, when installed as recommended by the Bureau of Mines, roof bolts simply and effectively prevent falls of roof. The installations have not been made in enough mines to have a notable effect on the accident rates in the entire coal-mining industry, but the success attained at mines where they are being used indicates what may be expected as their use becomes more general.

The introduction of roof bolting to the coal-mining industry marks another major contribution of the Bureau of Mines in its efforts to fulfill the primary objective of the Congress in establishing the Bureau in 1910 - to prevent accidents in the mineral industries.

Supplemental to the foregoing roof-control activities, a mining engineer has been assigned to make a thorough study of the possibilities of using various protective coatings to prevent disintegration of roof rock, with special attention to health and fire hazards involved. This work is continuing and progress reports have been published.

As a further means of reducing the incidence of roof-fall accidents, the Bureau of Mines initiated a Coal Mine Roof-Control Course in May 1951. It consists of about 2 hours of lecture and discussion, and is presented to coal-mine officials and employees by Federal coal-mine inspectors, usually after a mine inspection is completed. The course is designed to impress upon mine personnel the need for more adequate roof-control measures and to make all concerned more roof conscious; it was introduced in the industry in July 1951, and from that time to December 31, 1953, 197,707 mine personnel completed the training.

Although systematic timbering, using roof bolts, and training miners to be constantly alert to roof conditions have been effective in reducing fatalities, roof falls still account for more than half of all coal-mine fatalities, most of these in the areas within 12 feet of the working faces where the stability of the newly exposed roof cannot be immediately determined. In an effort to provide a means to guard against these unforeseen dangers, the Bureau is arranging an intensified program of research and investigation to develop mobile or portable devices that can be readily advanced with the working faces to protect workmen in the critical face areas. Success in this endeavor would be an outstanding advance in safety for the industry.

Coal-Mine Haulage Safety Section

The Coal Mine Haulage Safety Section of the Coal Mine Inspection Branch was established in December 1950 to: Reduce haulage accidents in coal mines by a study of causes; further study the trend of modernization and its possible effect on safety records; establish job-safety training instruction for haulage employees, based upon haulage safety fundamentals and accident experiences; conduct haulage-hazard surveys by trained personnel; and promote a safety campaign to reach all persons connected with coal-mine transportation.

In April 1951, a Coal Mine Haulage Safety Course was completed and introduced in the coal-mining industry. The course consists of lectures and illustrations with respect to haulage safety and is presented to mine personnel by the Federal coal-mine inspectors, usually after a mine inspection is completed. From April 1, 1951, to December 31, 1953, a total of 113,758 coal-mine haulage employees, officials, safety committeemen, and other completed this course. In view of the comparatively few men employed in haulage operations at coal mines, the number of trainees has been outstanding.

Additional activities of the section during the report period included:

1. Preparing technical papers on coal-mine haulage safety for publication and presentation at mining institutes.

2. Participating actively in National Safety Council, American Standards Association, and American Mining Congress committees for improvement in transportation safety and efficiency.

3. Completing field work on haulage-safety movie The Shuttle Car Operator and preparing the narrative script.

4. Making available pertinent data relative to haulage accidents and safe practices to companies and organizations requesting such service.

5. Completing several haulage surveys at operating mines in the field.

As a result of special attention to haulage accidents, combined with cooperation by numerous interested safety agencies, the number of fatal haulage accidents in both bituminous-coal and anthracite mines was substantially reduced. Haulage fatality rates per million man-hours exposure throughout the coal-mining industry were reduced over 22 percent from the 1952 record.

Injury and Employment Data

One of the special duties of coal mine inspectors and engineers of the Branch is to enlist the cooperation of coal-mine operators in submitting to the Bureau of Mines reports on injury and employment statistics in compliance with Sec. 105, Title I. If an operator needs instruction on how to fill out the proper forms, the inspector or engineer is prepared to give the advice needed. This work is done at the time the mine is being inspected and has resulted in the submission or more and better reports by mine operators.

Ventilation Surveys

Certain mining engineers of the Coal Mine Inspection Branch are assigned to coal-mine ventilation studies, surveys, and research. Especially difficult ventilation problems are encountered in mines from time to time, and mine operators request the Bureau's assistance in solving them. Many of these studies require pressure surveys and technical calculations that the regular coal-mine inspectors usually are not equipped to make.

Explosives Surveys

Mining-explosives engineers of the branch conducted special investigations with respect to the storage, transportation, and use of explosives and blasting devices. Generally, such studies are made at the request of mine operators who are interested in improving the safety and economy of their operations.

The Bureau of Mines has advocated the exclusive use of permissible explosives or permissible blasting devices in coal mines for many years, and has advised against using black blasting powder and dynamite, which have caused so many gas and dust explosions with attendant heavy casualties. The mining-explosives engineers did a considerable amount of educational work, demonstrating to mine operators by performance tests in the mines that the use of permissible explosives is much safer than and as economical as black blasting powder. Through their efforts and the efforts of the regular coal-mine inspectors, dangerous black blasting powder has been rapidly disappearing from coal mines. The mandatory provisions of Title II ban the storage, use, and handling of black blasting powder in mines coming under Title II coverage after January 16, 1953, and the mining-explosives engineers have, when requested, been of great assistance to coal-mine operators in making the required change-over to safer methods of breaking down the coal efficiently.

Electrical Surveys

The mining-electrical engineers and electrical inspectors of the Branch conduct special technical investigations of electrical facilities and installations in coal mines, generally at the request of mine operators. The engineers also are assigned to cooperate with the industry in conducting research work on electrical apparatus with a view toward designing safer equipment. The electrical inspectors also advise and assist the coal-mine inspectors in determining the status of permissible electrical face equipment as required by Sec. 209(f)(1) of Title II.

Dust Surveys

During the period January 21-31, 1946, a course of instruction in the Determination and Control of Unhygienic Dusts was given by personnel of the Bureau's Health Branch to certain employees of the Safety and Coal Mine Inspection Branches. The object of the training was to provide each main field station with a qualified man to determine the concentration of air-borne dusts in coal mines and to cooperate with dust experts of the Health and Safety Division in conducting such surveys.

The importance of dust control in coal mines is recognized by the mining industry, and the Bureau of Mines is continuing its research work on air-borne mine dusts with the view toward collecting enough data to be used as a basis for determining the concentrations of certain dusts that are considered harmful from a health standpoint and to determine the method and type of facilities best suited for controlling dusts.

On October 2, 1953, a program was inaugurated to have personnel engaged in coal-mine inspection collect information on air-borne dust conditions and dust-control practices in each coal mine inspected and submit a detailed report thereon to the chief of the Health Branch to assist in assembling data to determine the extent that occupational disease hazards exist in the Nation's mines as a result of exposure of workmen to dust-laden atmospheres. It is tentatively planned that the United States Public Health Service will cooperate in the physiological aspects of this study.

The Bureau's reports on float-dust surveys are becoming more important because of the great increase in rock drilling in coal mines. In promoting the adoption of roof bolting, the Bureau has been aware of the health hazard introduced by drilling holes in silica-bearing strata. The Bureau urged the industry to take the necessary precautions to overcome this health hazard and has been active in cooperating with the manufacturers of mining equipment in designing and developing suitable dust collectors for this purpose. In keeping with Bureau policy to see that proper equipment is available to the industry, Bureau of Mines Schedule 25 - Procedure for Testing Dust Collectors for Permissibility for Use in Connection with Rock Drilling in Coal Mines, was approved January 23, 1952, and later amended on July 23, 1952. Many dust collectors have met these requirements and have been approved and are available for use in coal mines under Schedule 25.

Engineers of the Coal Mine Inspection Branch are cooperating with mining companies in experimenting with new methods of controlling mine dusts. One of these is known as the water-infusion method, which aims to reduce the amount of fine dusts released in the atmosphere during routine mining operations simply by forcing water under pressure into the coal and rock in situ and thereby increasing the surface moisture content of the coal in advance of mining. This procedure has been used with success in mines in other countries; it is now being followed in a few mines in the United States, and experimental work is being done in other mines.

An extensive study of mine-dust sampling to determine the relationship between band sampling, or collecting one sample from the entire perimeter of a mine opening, and separate road-dust and rib-and-roof dust sampling, the accepted and established method, in assaying the adequacy of rock dusting in coal mines was completed in 1953. These investigations revealed that the incombustible content of dust samples collected from the entire perimeter of a mine opening is generally only slightly higher than the incombustible in a corresponding sample of the road dust, and the overall protection against the propagation of a dust explosion will not be jeopardized if band samples contain at least 65 percent incombustible material. On the basis of this information, coal-mine inspectors are now collecting one band sample of the mine dust, collected from the full perimeter of the opening, at each sampling point instead one road-dust sample and one roof-and-rib sample, the former procedure.

With a view toward further simplification of procedures in determining the incombustible content of mine dust, a study is in progress to ascertain the accuracy of a colorimetric method of making these determinations in the field without laboratory analysis.

Study of Natural-Gas Restorage Areas in Coal Fields

Re-storing natural gas, some at pressures greater than the initial rock pressures, in the exhausted sands under coal mines and installing high-pressure gas transmission lines overlying active coal-mining areas present potential gas-explosion hazards in the adjacent coal-bearing strata. Consequently, considerable work has been done to chart and correlate the gas-re-storage fields and the gas-transmission lines with the active coal-mining areas.

Participation in Safety Organizations

Personnel of the Coal Mine Inspection Branch takes an active part in the National Safety Council, its various affiliated regional organizations, the National Mine Rescue Association, the American Mining Congress, and other National, regional, and local safety organizations throughout the United States by serving as officers and on committees and participating in the various programs.

Cooperation With Other Federal Agencies

Cooperation with other Federal agencies includes the following assignments of personnel of the Coal Mine Inspection Branch to special foreign duty:

1. One mining engineer who was assigned to the (now) Foreign Operations Administration in May 1949 to serve as advisor to the foreign Governments in developing coal mines has completed his mission.

2. One coal-mine inspector on foreign service in Colombia, South America, since July 1950 has completed his assignment.

3. Two coal-mine inspectors were loaned to the Foreign Operations Administration in May 1952 to assist in increasing the production of coal in Austria, and one was loaned to the same agency in May 1952 to assist in increasing the production of coal in Korea. Both missions have been completed.

4. An explosives engineer made a special explosives investigation to determine the cause of misfires for Orinoco Mining Co., Venezuela.

5. One coal-mine inspector who was loaned to the Foreign Operations Administration for service in India in December 1952 is still on that assignment.

6. A member of the Coal Mine Inspection Branch represented the United States Government at the Fifth Session of the Coal Mines Committee of the International Labor Organization at Dusseldorf, Germany, in December 1953.

Such assignments of engineers and inspectors serve a twofold purpose: (1) The agency to which the Bureau experts are loaned receives the benefit of their wide experience in mining and the experts add to their fund of knowledge, and (2) the information obtained through such special work is made available to the mining industry if such action is deemed in the public interest.

Personnel of the Coal Mine Inspection Branch cooperates with the Wage and Hour and Public Contracts Divisions, United States Department of Labor, in administering the Public Contracts section of the Walsh-Healy Act. The cooperation consists of the Bureau of Mines field office promptly notifying the local regional office of the Wage and Hour and Public Contracts Divisions in the event disaster or serious hazards are found by Federal coal-mine inspectors at Title I mines.

Revision of State Coal Mining Laws

Since 1947, personnel of the Coal Mine Inspection Branch has assisted in preparing proposed revisions of the coal-mining laws of 12 States.

The safety-regulations sections of the proposed revisions were designed along the lines of the Federal Mine Safety Code, thus assuring more modern and standardized State coal-mining laws, and they have been adopted substantially as written in Alabama, Colorado, Maryland, Montana, Tennessee, and Wyoming. Proposed revisions of such laws for Arkansas, Illinois, Indiana, Kentucky, Ohio, and Oklahoma were prepared, but either they were not enacted or were not introduced in the legislature.

The Bureau of Mines will continue to furnish this service to any agencies directly concerned with improving State mining laws, such as labor organizations, coal-operators' associations, and State officials.

This contribution toward the reduction of injuries in coal mines is another major and vitally important step taken by the Bureau to fulfill its obligations to the coal-mining industry.

First-Aid and Mine-Rescue Training

Personnel of the branch conducted first-aid and mine-rescue training for coal-mine personnel. During 1953, 12,282 persons completed the course in first aid, and 622 persons completed the mine rescue training.

Miscellaneous Special Assignments

A breakdown of the miscellaneous special assignments completed during 1953 is given in appendix J.

Achievements

This report covers the first full calendar year of inspection of coal mines under the Federal Coal Mine Safety Act and the twelfth full calendar year of Federal coal-mine inspection work. The effectiveness of the work done by all concerned in fulfilling the principal purpose of Federal inspections - reduction of accidents in coal mines - is revealed in part by comparing the injury records attained during equal 10-year periods before and after 1941 when the law became effective, as follows. The injury records for calendar years 1952 and 1953 are also given.

During the 10 years before Federal inspection of coal mines, 2,295 men were killed in the anthracite mines of Pennsylvania, and the average number of fatalities per million man-hours exposure was 1.61. During the first 10 calendar years of operation under Public Law 49, 1,537 men were killed, and the rate was 1.11 - a reduction of 33 percent in the number of fatalities and 31 percent in the average fatality rate. The tentative figures for 1953 reveal 64 fatalities and a frequency rate of 0.89, as compared with 99 fatalities and a frequency rate of 0.99 in 1952 - a reduction of 35 percent in the number of fatalities and 10 percent in the fatality rate. (See table 1, appendix K).

During the 10 years before Federal inspection of coal mines, 151,299 nonfatal lost-time injuries occurred in the anthracite mines of Pennsylvania, and the average number of nonfatal injuries per million man-hours exposure was 105.94. During the first 10 calendar years of operation under Public Law 49, 110,234 nonfatal injuries occurred, and the average rate was 80.19 - a reduction of 27 percent in the number of nonfatal injuries and a reduction of 26 percent in the average nonfatal-injury rate. The tentative records for 1953 reveal 4,700 non-fatal lost-time injuries and a frequency rate of 65.71, as compared with 6,005 nonfatal injuries and a frequency rate of 59.82 in 1952 - a reduction of 22 percent in the number of nonfatal injuries, but an increase of 10 percent in the frequency rate. (See table 1, appendix K.)

During the 10 years before Federal incpection of coal mines, 10,036 men were killed in the bituminous-coal and lignite mines of the United States, and the average number of fatalities per million man-hours exposure was 1.48. During the first 10 calendar years of operation under Public Law 49, 8,889 men were killed, and the average rate was 1.18 - a reduction of 11 percent in the number of fatalities and a reduction of 20 percent in the average fatality rate. The tentative records for 1953 reveal 393 fatalities and a frequency rate of 0.81, as compared with 449 fatalities and a frequency rate of 0.83 for bituminous coal and lignite mines in 1952 - a reduction of 12 percent in the number of fatalities and 2 percent in the rate. (See table 1, appendix K.)

During the 10 years before Federal inspection of coal mines, 447,199 nonfatal lost-time injuries occurred in the bituminous-coal and lignite mines of the United States, and the average number of nonfatal injuries per million man-hours exposure was 65.81. During the first 10 calendar years of operation under Public Law 49, 416,646 nonfatal injuries occurred, and the average rate was 55.58 - a reduction of 7 percent in the number of nonfatal injuries and a reduction of 16 percent in the average nonfatal-injury rate. Tentative records for 1953 reveal 22,300 nonfatal lost-time injuries and a frequency rate of 46.15, as compared with 31,015 nonfatal injuries and a frequency rate of 57.22 in 1952 - a reduction of 28 percent in the number of nonfatal injuries and 19 percent in the frequency rate. (See table 1, appendix K.)

A record of the number of fatal and nonfatal injuries, by calendar years, that have occurred in the coal mines of the United States since 1932 is shown in table 2 of appendix K. Preliminary figures indicate that an all-time low in fatality-frequency rates and number of fatalities has been realized for the calendar year 1953. During this 12-month period, 457 men were killed for a frequency rate of 0.82 per million man-hours exposure, as compared with 548 men killed and a frequency rate of 0.85 in 1952, the lowest previous figures. Similarly, the number of nonfatal lost-time injuries and their rate of occurrence in 1953 are the lowest in the history of the coal-mining industry. Whereas, Title II of the Federal Coal Mine Safety Act was designed to prevent major disasters in coal mines employing regularly 15 or more persons underground and provided enforcement authority to attain this end, the results of operation under the act apparently extended beyond the scope thereof by stimulating generally the safety efforts of the entire industry.

The number of major coal-mine disasters in the United States and the fatalities resulting from them are listed for each year since 1931 in table 4 of appendix K. A major disaster is defined as any accident that causes the death of 5 or more persons, and it is gratifying to report that no such disaster occurred in the coal mines of this country from November 4, 1948, to January 18, 1951, an unprecedented disaster-free period. However, from January 18, 1951 to March 27, 1952, 7 major disasters occurred, killing 168 men, including the explosion in the Orient mine No. 2, Chicago, Wilmington, & Franklin Coal Co., Illinois, on December 21, 1951, which caused the death of 119 men. One major disaster, which resulted in the death of 5 men, occurred in coal mines during the first full calendar year under the Federal Coal Mine Safety Act. This was the result of a coal-dust explosion initiated by a blown-out charge of black blasting powder in an Iowa mine. A temporary restraining order issued by a State court prohibited Federal inspectors from enforcing the ban on the use of black blasting powder as provided for in the Federal Coal Mine Safety Act.

Major improvements made in coal mines during the last 12 years contributed much to the favorable decrease in the injury rates. The records show that since December 1941 a systematic roof-support plan has been adopted in 2,263 mines; use of dangerous black powder was discontinued in 1,478 mines; new main fans were installed at 2,662 mines; auxiliary blower fans with tubing were removed from 548 mines; preshift examinations for gas and other dangers were begun in 2,902 mines; onshift examinations for gas were begun in 1,995 mines; use of water to allay dust was initiated in 1,003 mines; 1,739 mines were rock-dusted for the first time; second-openings were provided in 832 mines; smoking was discontinued in 1,573 mines; and the use of open lights was discontinued in 1,380 mines. (See appendix L.)

The favorable results attained during the past 12 years are not due to the efforts of any one group or agency, but it is well known in mining circles that Federal coal-mine inspection activities have been, and continue to be, a great influence in giving deserved attention to health and safety in coal mines. The Bureau has striven, with success, to have management and labor work hand-in-hand to iron out their safety and health problems. It is the cooperative efforts of management, labor, State inspection agencies, manufacturers of mining equipment, coal-operators' associations, the Federal Bureau of Mines, and other agencies interested in mine safety that have brought about the improvements in conditions and practices that have resulted in continuing reduction in coal-mine injuries.

Recommendations for Legislative Action

Experience in administering the provisions of Title II of the Federal Coal Mine Safety Act has been too limited to formulate in detail desired amendments to the act at this time. It is evident, however, that many hazards that might lead to a disaster are being eliminated in the mines that come within the scope of the mandatory provisions of the act, but much more can be accomplished if the enforcement powers afforded the Federal inspectors were expanded to cover most of the smaller mines, those employing less than 15 men underground, which, as a group are poorly regulated. This is borne out by the fact that 62 percent of the inspection reports on these mines indicated hazards of a serious nature that were not corrected promptly, and only 15 percent of all the dangerous conditions reported were being corrected during the period covered by this report. (See appendix C and appendix G.) The underground fatality frequency rate for mines employing 14 or less men underground, Title I mines, was 2.79 during 1953, as compared with 0.88 for mines employing 15 or more men underground. These data are given in appendix K, table 3.

Publications

The following Bureau of Mines publications, issued during 1953, were prepared wholly or partly by personnel of the Coal Mine Inspection Branch:

Publication		Title	Authors
HSS	417	Fatalities at Pennsylvania Anthracite Mines for 1952.	J. V. Mather
I. C.	7656	Some Factors Affecting and Suggested Ways for Improving Coal Mine Ventilation, With Particular Reference to Mines in Illinois, Indiana, and Western Kentucky	C. A. Herbert
I. C.	7658	National First-Aid and Mine Rescue Contest Columbus, Ohio. October 2, 3, and 4, 1951	W. H. Tomlinson

Publication	Title	Authors
I. C. 7661	Coal-Mine Explosions and Coal and Metal-Mine Fires in the United States in 1950, 1951, and 1952	W. J. Fene and H. B. Humphrey
I. C. 7662	Fire-Fighting Equipment in Coal-Mines - Selection, Placement and Care.	W. Dan Walker, Jr., W. Eathorne, S. P. Polack, and C. M. Keenan
I. C. 7665	Organizations With Programs Beneficial to Coal-Mine Employees	W. Dan Walker, Jr., and S. J. Polack

APPENDIXES

Appendix A

Personnel of the Coal Mine Inspection Branch Employed as of December 31, 1953 and Coal Area Covered by Each Field Office

Region I

S. H. Lorain, Regional Director
Anchorage, Alaska

Coal area covered - Territory of Alaska

Raymond L. Ellis	Coal-mine inspector	Anchorage, Alaska
Mary T. Edgar	Clerk-typist	do.

Region II

S. M. Shelton, Regional Director
Albany, Oreg.

Louis H. McGuire, chief, Seattle Office

Coal area covered - Washington, Oregon, Idaho, and Montana

Edward L. Christensen	Coal-mine inspector	Billings, Mont.
Emmanuel J. Grillos	Health and safety engineer	Seattle, Wash.
Andrew Hamilton	Coal-mine inspector	Billings, Mont.
Ruth G. Johnson	Clerk-typist	Seattle, Wash.

Region IV

John H. East, Jr., Regional Director
E. H. Denny, Division Chief
Denver, Colo.

E. A. Morgan, chief, Denver Office

Coal area covered - Colorado, New Mexico (Colfax and Rio Arriba Counties), and Wyoming (Carbon, Converse, Campbell, Johnson, and Sheridan Counties).

J. J. Bastalich, Jr.	Coal-mine inspector	Denver, Colo.
J. A. Bennett	do.	do.
A. Z. Dimitroff	Mining engineer (electrical)	do.
R. E. Evans	Coal-mine inspector	Grand Junction, Colo.
J. Freeman	do.	Denver, Colo.
G. B. Fritts	do.	do.
C. T. Hallett	do.	do.
A. C. Moschetti	do.	do.
D R. Ratkovich	do.	do.
I. J. Ratliff	do.	do.
R. T. Reay	do.	Trinidad, Colo.
P. C. Van Natter	do.	Denver, Colo.
Marie E. Chambers	Clerk	do.
Emmylu Collins	Clerk-typist	do.
Jeanne M. Wildy	do.	do.
Joan M. Williams	Clerk-stenographer	do.

R. D. Reeder, chief, Salt Lake City Office
Salt Lake City, Utah

Coal area covered - Utah and Wyoming (all counties not covered by Denver Office)

Ezekiel B. Confer	Mining health and safety engineer	Salt Lake City, Utah
Albert C. Husted	Coal-mine inspector	do.
Lester D. Knill	Mining health and safety engineer	do.
Thomas H. O'Neal	Coal-mine inspector	do.
Thomas T. Reay, Jr.	do.	Price, Utah
Ione R. Ayre	Clerk-stenographer	Salt Lake City, Utah
Afton O. Speakman	Clerk-typist	do.

Allen D. Look, chief, Phoenix Office
Phoenix, Ariz.

Coal area covered - Arizona and New Mexico (except Colfax and Rio Arriba Counties).

Wm. Roberts	Coal-mine inspector	Albuquerque, N. Mex.

Region V

M. E. Volin, Regional Director
Minneapolis, Minn.

John A. Johnson, chief, Duluth Office
Duluth, Minn.

Coal area covered - North Dakota, Iowa, and Michigan

Roy Capps	Coal-mine inspector	Duluth, Minn.
Walter B. Dalrymple	Mining health and safety engineer	Ames, Iowa
Irene N. Porvaznik	Clerk-typist	Duluth, Minn.
Irene E. Tonius	do.	do.

Region VI
C. W. Seibel, Regional Director

George M. Kintz, chief, Dallas Office
Dallas, Tex.

Robert D. Bradford, chief, McAlester Office
McAlester, Okla.

Coal area covered - Oklahoma, Arkansas, Missouri, Kansas, and Texas

Arthur Charlesworth	Coal-mine inspector	McAlester, Okla.
Michael Deal, Jr.	do.	do.
Millard T. Fuller	do.	do.
Louis S. Kovash	do.	do.
Eugene W. Machin	do.	do.
Paul Wills	do.	do.
Mignonette W. Grantham	Clerk-(typing)	do.
Mary Romano	Clerk-stenographer(secretary)	do.
Charlie E. Thomas	Instrument maker	do.

Region VII

Paul T. Allsman, Regional Director
Knoxville, Tenn.

Milton C. McCall, chief, Birmingham Office
Birmingham, Ala.

Coal area covered - Alabama, Georgia, and North Carolina

William Arthur	Coal-mine inspector	Birmingham, Ala.
Donald Bowker	do.	do.
Thomas F. Curry	do.	do.
Arthur Guthrie	do.	do.
Lawrence H. Harrison	Mining electrical engineer	do.
Ralph B. Jones	Coal-mine inspector	do.
Carl F. Kahre	do.	do.
Henning J. Marstrander	do.	do.
Haskel E. Melhorn	do.	do.
Wilbur G. McCrary	do.	do.
Joe A. Rejonis	do.	do.
Harry N. Smith	Supervising inspector	do.
Harry C. Young	Coal-mine inspector	do.
Sarah B. Meadows	Typist	do.
Anna M. McFarland	do.	do.
Catherine W. Ray	Chief clerk	do.
Willette B. Tennent	Clerk (typing)	do.

Charles H. Dodge, chief, Jellico Office
Jellico, Tenn.

Coal area covered - Tennessee

Ira Amburgey	Coal-mine inspector	Jellico, Tenn.
Stephen J. Bukovitz	do.	do.
Herbert D. Couk	do.	do.
Charles E. Estep	Coal-mine electrical inspector	do.
Fornie A. Jordan	Coal-mine inspector	do.
John D. Martin	do.	do.
Joseph Neal	do.	do.
Jack Reese	do.	do.
Wilbur E. Stiles	do.	do.
Fred W. Stout	Health and safety engineer	do.
Dee Zimmerman	Coal-mine inspector	do.
Annie M. Black	Clerk-typist	do.
Lois G. Trammel	Typist	do.
Nona S. Vermillion	do.	do.
Gladys M. Warming	Chief clerk	do.

Region VIII

H. P. Greenwald, Regional Director
W. H. Tomlinson, Division Chief
Pittsburgh, Pa.

Alexander E. Morrow, Assistant to Chief

W. D. Walker, Jr., chief, Pittsburgh Office
Pittsburgh, Pa.

Coal area covered - Pennsylvania (Allegheny, Armstrong, Beaver, Butler, Clarion, Fayette, Greene, Lawrence, Mercer, Venango, Washington, and Westmoreland Counties).

F. Delbert Baker	Coal-mine inspector	Pittsburgh, Pa.
W. Marion Baker	Coal-mine electrical inspector	do.
John E. Bradburn	Coal-mine inspector	do.
Clyde L. Brown	Mining engineer (electrical)	do.
Harry R. Burdelsky	Coal-mine inspector	do.
Gordon W. Chastain	do.	Waynesburg, Pa.
Wymar G. Cooper	do.	Pittsburgh, Pa.
Robert T. Davis	do.	do.
Junior H. Dumire	do.	do.
Edward C. Dydo	do.	Greensburg, Pa.
William Eathorne	Health and safety engineer	Pittsburgh, Pa.
Frank Heffers	Coal mine inspector	Washington, Pa.
John W. Holcomb	do.	Pittsburgh, Pa.
Francis A. Johnson, Jr.	Health and safety engineer	do.
Lawrence S. Johnston	Coal-mine inspector	Kittanning, Pa.
Arthur C. Jones	do.	Uniontown, Pa.
Kenneth K. Kelley	do.	Pittsburgh, Pa.
Robert J. Kirk	do.	Washington, Pa.
Griffin L. Lynch	do.	Uniontown, Pa.

William L. Lyon	Coal-mine inspector	Uniontown, Pa.
David T. Parry	do.	Kittanning, Pa.
Samuel P. Polack	Health and safety engineer	Pittsburgh, Pa.
John Risko	Coal-mine inspector	do.
Stacy L. Stiles	do.	Greensburg, Pa.
Glenn J. R. Toothman	Health and safety engineer	Pittsburgh, Pa.
Everett Turner	Coal-mine inspector	do.
Michael A. Yuhase	do.	Waynesburg, Pa.
Frances A. Begg	Clerk-stenographer	Pittsburgh, Pa.
Baila Fineman	do.	do.
Finalba G. Graziani	do.	do.
Agnes M. Hadfield	Clerk-typist	do.
Martha E. Hanulik	Clerk-stenographer	do.
Hilda K. Krumm	do.	do.
Margaret Lang	General clerk (typing)	do.
Rose Silver	Administrative assistant	do.
Shirley J. Yanosko	Clerk-stenographer	do.

Edward H. McCleary, chief, Wilkes-Barre Office
Wilkes-Barre, Pa.

Coal area covered - Pennsylvania anthracite region

Nicholas M. Benson	Coal-mine inspector	Wilkes-Barre, Pa.
Vernon H. Bowling	do.	do.
Robert V. Brown	do.	do.
Lee B. Carson	do.	do.
Gerald W. Croyle	do.	Schuylkill Haven, Pa.
George W. Culverhouse	do.	Wilkes-Barre, Pa.
Theodore F. Deak	do.	Schuylkill Haven, Pa.
Gerald W. Fortney	do.	Wilkes-Barre, Pa.
John A. Fulmer	do.	Schuylkill Haven, Pa.
Denver S. Griffith	do.	Wilkes-Barre, Pa.
David M. Hart	do.	do.
Charles E. Jones	do.	do.
Frank A. Koza	do.	Schuylkill Haven, Pa.
James R. Laird	do.	Wilkes-Barre, Pa.
Harvey P. Landis	do.	do.
Joseph R. Lindsey	do.	do.
Joseph V. Mather	Mining engineer (explosives)	do.
Garrett M. Mortensen	Coal-mine inspector	do.
Joseph L. Plisko	do.	do.
Frank A. Retsel	do.	do.
Harry A. Schrecengost	do.	Schuylkill Haven, Pa.
Clair S. Sigworth	do.	Wilkes-Barre, Pa.
Arthur A. Sinicrope	do.	do.
Joseph E. Stanton	do.	do.
Robert C. Todd	do.	Schuylkill Haven, Pa.
William T. Torrance	do.	Wilkes-Barre, Pa.
Charles F. Weber	do.	do.
Harrison F. Wilson	do.	Schuylkill Haven, Pa.
Pauline Bankovich	Clerk-stenographer	Wilkes-Barre, Pa.
Betty M. Bennett	Clerk	do.
Catherine M. Gaydosh	Clerk-stenographer	do.
Ruth A. Ginley	do.	do.

Martha A. Karweta	Clerk-typist	Wilkes-Barre, Pa.
Lillian T. Levandoski	do.	do.
Bridget H. Lipp	do.	do.
Josephine M. Serino	do.	do.
Helen M. Sigworth	Clerk-stenographer	do.

W. R. Park, chief, Mount Hope Office
Mount Hope, W. Va.

Coal area covered - West Virginia (south of Jackson, Roane, Braxton, Webster, and Randolph Counties)

Paul T. Akers	Coal-mine inspector	Logan, W. Va.
Thomas Allamon	do.	Mt. Hope, W. Va.
James G. Bosley	do.	Logan, W. Va.
Eric H. Brown	do.	Mt. Hope, W. Va.
David L. Brown, Jr.	do.	Montgomery, W. Va.
Robert Calvert	do.	Logan, W. Va.
William Cordray	Health and safety engineer	Mt. Hope, W. Va.
Raymond C. DeWeese	Coal-mine inspector	Montgomery, W. Va.
Joseph S. Ferraro	do.	Mt. Hope, W. Va.
Anthony J. Fumich	Health and safety engineer	Mt. Hope, W. Va.
Frank J. Furin	Coal-mine inspector	do.
Thomas W. Gay	do.	Logan, W. Va.
William E. Gaylor	do.	Welch, W. Va.
James F. Haley	do.	Montgomery, W. Va.
James L. Gilley	do.	Welch, W. Va.
Marvin E. Hall	do.	Mt. Hope, W. Va.
Oscar W. Harris	do.	Logan, W. Va.
Francis H. Henderson	do.	Montgomery, W. Va.
Harold M. Hock	do.	Mt. Hope, W. Va.
Michael J. Hovanec	do.	Welch, W. Va.
Carl A. Kansala	do.	Mt. Hope, W. Va.
Luther A. Lewallen	do.	do.
Hobart B. Lynch	do.	Logan, W. Va.
Denis C. McGinity	do.	Welch, W. Va.
John Matsko	do.	Mt. Hope, W. Va.
Elwood Menta	do.	Welch, W. Va.
James A. Merrick	do.	Montgomery, W. Va.
William Merritts	Health and safety engineer	Logan, W. Va.
Leo M. Morelli	Coal-mine inspector	Summersville, W. Va.
John C. Muir	do.	Logan, W. Va.
George Noe	do.	Welch, W. Va.
Anthony Puskas	do.	Mt. Hope, W. Va.
George M. Reid	do.	East Rainelle, W. Va.
Frank J. Stortz	do.	Mt. Hope, W. Va.
William T. Trinkley	do.	Princeton, W. Va.
Lex Trunko	do.	Logan, W. Va.
Arthur L. Elshafer	do.	Pineville, W. Va.
Jesse A. Van Gilder	do.	Montgomery, W. Va.
Ward R. Vickers	do.	Welch, W. Va.
James T. Whalen	do.	Logan, W. Va.
Lawrence L. Wylam	do.	Mt. Hope, W. Va.
John Zeleskey	do.	Welch, W. Va.
Lloyd G. Fitzgerald	Mining engineer (explosives)	Mt. Hope, W. Va.

Francis J. Gallagher	Mining engineer (electrical)	Mt. Hope, W. Va.
Edward M. Lewis	Health and safety engineer	Bluefield, W. Va.
Reid B. McKinley	Mining engineer (electrical)	Mt. Hope, W. Va.
Helen E. Adams	Clerk-typist	do.
Doris J. Bailey	Clerk-stenographer	do.
Eileen M. Bryant	Clerk-typist	do.
Gladys C. Davis	do.	do.
Frances Dixon	Clerk (typing)	do.
Margaret L. McCool	Clerk-typist	do.
Norma J. McGraw	do.	do.
Louise V. Marchio	do.	do.
Montana M. Perry	Clerk-stenographer	do.
Pasquale Pino	Packer-janitor	do.
Wanda J. Pino	Clerk-typist	do.
Audrey O. Sanger	do.	do.
Maybelle C. Weaver	Clerk-stenographer	do.

J. B. Benson, chief, Norton Office
Norton, Va.

Coal area covered - Virginia and those parts of eastern Kentucky east of Elliott, Morgan, Magoffin, and Knott Counties and parts of Letcher and Harlan Counties east of Whitesburg and north of Harlan, respectively.

Leslie E. Allen	Coal-mine inspector	Norton, Va.
Walter M. Allen	do.	do.
Charles B Aspinwall	do.	Richlands, Va.
Leslie C. Bailey	do.	Norton, Va.
Harold R. Baker	do.	Pikeville, Ky.
George M. Betchey	do.	Big Stone Gap, Va.
Henry E. Bickelman	do.	Norton, Va.
Houston C. Brumbaugh	do.	do.
Patrick J. Buchanan	do.	do.
William R. Burgess	do.	Pikeville, Ky.
Clyde W. Casey	do.	do.
Charles C. Cavendish	do.	Big Stone Gap, Va.
John H. Clawson	do.	Norton, Va.
Robert L. Cochran	do.	Big Stone Gap, Va.
George W. Colbert	do.	Norton, Va.
Francis A. Cress	do.	do.
James W. Cromwell	do.	Richlands, Va.
Matthew I. Duncan	do.	Pikeville, Ky.
John G. Emershaw	do.	Norton, Va.
Frank L. Gaddy	Health and safety engineer	do.
Raymond T. Linville	Coal-mine inspector	Big Stone Gap, Va.
George W. Luke	do.	Norton, Va.
William L. Meadows	do.	Pikeville, Ky.
George L. Mears	do.	Norton, Va.
George W. Parry	Health and safety engineer	do.
John J. Pendergast, Jr.	Coal mine inspector	do.
Charles A. Smith	do.	do.
Wayne C. Snyder	do.	Richlands, Va.
Peter F. Stevenson	do.	Norton, Va.
William R. Stewart	do.	do.

Carl F. Stinnette	Coal-mine electrical inspector	Norton, Va.
Calvin F. Watson	Coal-mine inspector	Pikeville, Ky.
Harold H. Wiley	do.	Richlands, Va.
John F. Wilson	do.	Norton, Va.
Joseph B. Yanity	do.	do.
Fanny M. Brice	Clerk-typist	do.
Lundia S. Clark	Clerk-stenographer	do.
Betty S. Gilliam	do.	do.
Billy W. Greene	Packer-janitor	do.
Clara L. Keith	Clerk-typist	do.
Frances B. Lamb	do.	do.
Betty P. Price	Clerk-stenographer	do.
Pat Bevins Robinson	Clerk-typist	do.
Alice Ann Smith	do.	do.
Martha C. Smith	Administrative aide	do.

Joseph J. Malesky, chief, Barbourville Office
Barbourville, Ky.

Coal area covered - Kentucky east of Frankfort and west of and including Elliott, Morgan, Mahoffin, and Knott Counties and parts of Letcher and Harlan Counties west of Whitesburg and south of Harlan, respectively.

Nestor L. Adams	Coal-mine inspector	Hazard, Ky.
Durell W. Barger	do.	Barbourville, Ky.
Henry F. Basinger	do.	Harlan, Ky.
Brooks Blackwood	do.	do.
Noah B. Close	do.	Hazard, Ky.
William E. Duke	Coal-mine electrical inspector	Barbourville, Ky.
J. D. Farris	Coal-mine inspector	do.
Dennie R. Hager	do.	Harlan, Ky.
Morris J. Hughes	do.	Barbourville, Ky.
Clarence E. Hyde	do.	do.
John E. Jones	do.	Hazard, Ky.
Thomas R. Mark, Jr.	do.	Barbourville, Ky.
Clay Pate	do.	do.
Thomas R. Redin	do.	do.
Russell Shaw	do.	do.
Alta F. Bonza	Clerk-stenographer	do.
Georgia S. Jefferson	Clerk-typist	do.
Mary F. Kidd	do.	do.

C. J. Dalzell, chief, Johnstown Office

Coal area covered - Pennsylvania (Bedford, Blair, Cambria, Clearfield, Centre, Clinton, Elk, Huntington, Indiana, Jefferson, Lycoming, Somerset, and Tioga Counties)

S. A. Andrejko, Jr.	Coal-mine inspector	Johnstown, Pa.
P. J. Beatty	do.	Clearfield, Pa.
W. D. Brown	do.	Indiana, Pa.
W. C. Cagley	do.	Johnstown, Pa.
J. D. Coleman	Coal-mine electrical inspector	do.
W. D. Demkowicz	Coal-mine inspector	do.

Omar Elkins	Coal-mine inspector	Berlin, Pa.
C. H. Gaskill	do.	Punxsutawney, Pa.
D. K. Kreischer	do.	Barnesboro, Pa.
S. A. Magistrella	do.	Indiana, Pa.
W. O. Montgomery	do.	do.
D. W. Moore	do.	Johnstown, Pa.
J. A. Moore	do.	do.
J. A. Noon	do.	do.
V. D. Null	do.	do.
G. Reese	do.	do.
R. H. Reid	do.	Clearfield, Pa.
N. Rumburg	do.	Cherry Tree, Pa.
H. L. Scott	do.	Punxsutawney, Pa.
D. Vittitow	Health and safety engineer	Johnstown, Pa.
L. L. Foltz	Clerk-stenographer	do.
J. B. Franke	do.	do.
M. M. Gelet	do.	do.
M. L. Smutko	do.	do.
E. L. Spielman	Clerk-typist	do.
V. M. Weakland	Chief clerk	do.

John J. Dougherty, chief, Fairmont Office
Fairmont, W. Va.

Coal area covered - Maryland and West Virginia (north of Mason, Kanawha, Clay, Nicholas, and Pocahontas Counties and south of Marshall County)

William D. Baldwin	Coal-mine inspector	Fairmont, W. Va.
William T. Cummings	do.	do.
Jay C. Davis	do.	do.
Joseph J. Dobis	do.	do.
William C. Eiduke	do.	do.
Roy C. Estep	do.	do.
Warden L. Evans	do.	do.
John C. Hartley	Health and safety engineer	do.
Harry Jones	Coal-mine inspector	do.
Fred E. Kemrite	do.	Elkins, W. Va.
Joseph Marshalek	do.	do.
William R. Melville	do.	Fairmont, W. Va.
Louis E. O'Connor	do.	do.
Joseph F. Orlando	do.	do.
Frank E. Riley	do.	do.
Paul M. Shay	do.	Grafton, W. Va.
Thomas J. Ward	do.	Frostburg, Md.
Pauline B. Buretz	Clerk	Fairmont, W. Va.
Laura S. Cutlip	Clerk-typist	Farmington, W. Va.
Pauline W. Dusch	Clerk-stenographer	Fairmont, W. Va.
Mary K. Elsey	Chief clerk	do.
Bettie T. Wakenight	Clerk-stenographer	do.

T. C. Higgins, chief, St. Clairsville Office
St. Clairsville, Ohio

Coal area covered - Ohio and West Virginia (Brooks, Hancock, Marshall, and Ohio Counties)

Richard E. Barr	Coal-mine inspector	St. Clairsville, Ohio
John Barry	do.	do.
William J. Buswink	do.	do.
John T. Callahan	do.	do.
John S. Eakins	do.	do.
Frank E. Hughes	do.	Athens, Ohio
Taylor V. Johns	do.	St. Clairsville, Ohio
Edward J. Marron	do.	do.
Joseph C. Reardon	do.	Cambridge, Ohio
Don W. Snow	do.	St. Clairsville, Ohio
William J. Symons	do.	do.
John W. Zavora	do.	do.
Elsa M. Cara	Clerk-stenographer	do.
Mary E. Duffey	do.	do.
Anna M. Moskus	Clerk-typist	do.
Mary R. Travis	do.	do.

E. E. Quenon, chief, Vincennes Office
Vincennes, Ind.

Coal area covered - Illinois, Indiana, and Kentucky (west of Frankfort)

Frank Beck	Coal-mine inspector	Springfield, Ill.
Loren A. Belt	do.	Taylorville, Ill.
William R. Chick	do.	Benton, Ill.
Ben J. Dona	do.	Madisonville, Ky.
Sanford J. Douglas	Coal-mine electrical inspector	Vincennes, Ind.
Clement M. Dovidas	Coal-mine inspector	do.
Clifton H. Dupree	co.	Madisonville, Ky.
George W. Hammons	do.	Staunton, Ill.
Maroni V. Hansen	Health and safety engineer	Vincennes, Ind.
Elias J. Harris	do.	do.
Newton M. Henson	Coal-mine inspector	Madisonville, Ky.
Charles A. Herbert	Mining health and safety engineer	Vincennes, Ind.
Leon W. Kelly	Coal-mine inspector	do.
Walter W. Kessler	do.	Staunton, Ill.
Andrew J. Kopp	do.	Benton, Ill.
James A. McCune	do.	Vincennes, Ind.
Maurice R. Messersmith	do.	Benton, Ill.
James A. O'Connor	Mining health and safety engineer	Vincennes, Ind.
Frank Perz	Coal-mine inspector	Terre Haute, Ind.
T. Alvin Scully	do.	Belleville, Ill.
Roy E. Seiger	do.	do.
James P. Sheridan	do.	Vincennes, Ind.
Oscar V. Simpson	do.	Benton, Ill.
Francis J. Smith	do.	Vincennes, Ind.
Coy L. South	do.	Benton, Ill.
Joseph R. Summary	do.	do.
Richard W. Whittaker	Health and safety engineer	Vincennes, Ind.
Irene W. Adams	Clerk-stenographer	do.
Wilma H. Chester	Clerk-typist	do.
Clara Marie Dreiman	do.	do.

Anna C. Kaiser	Clerk-stenographer	Vincennes, Ind.
Lucile H. Martin	do.	do.
Mary E. Meyer	Clerk-typist	do.
Margarett M. Reeves	do.	do.
Georgia L. Van Lieu	Administrative assistant	do.
Leonard W. Pieper	General supply clerk	do.

WASHINGTON OFFICE STAFF

BUREAU OF MINES

John J. Forbes, Director

HEALTH AND SAFETY DIVISION

James Westfield, Chief

W. J. Fene, Assistant chief

COAL-MINE INSPECTION BRANCH

H. F. Weaver, Chief

Malcolm L. Davis	Safety representative
Raymon K. Franklin	Mining engineer
Charles M. Keenan	Technical assistant
Thomas J. McDonald	Safety representative
William Rachunis	Mines safety representative
George M. Smith	Safety representative
Barbara H. Bassani	Clerk-stenographer
Margaret A. Bobby	do.
Eunice Lee Davis	File clerk
Martha E. Patton	File clerk (typing)
Coletta A. Schuster	Clerk (typing)
Perna A. Zott	Clerk

COAL MINE HAULAGE SAFETY SECTION

Donald S. Kingery, chief

Appendix B

TABLE 1. - Details of inspection data - Title II mines - 1953

	Title II mine inspections	Joint State-Federal inspections1/ 7/1952 to 12/1953	Violations Sec. 209 observed	Mines at which Form B Notices were issued	Notices issued			Orders issued			Mines at which orders were issued		Mines found free of violations	Title II mines inspected
						Form C								
					Form B original	Violations abated	Time extended	Form A 203(a)	Form D 203(c)	Form B-1 203(d)	Form A	Form D	Title II	
Alabama	120	0	101	19	43	49	16	0	0	0	0	0	38	44
Alaska	7	2	12	2	5	5	3	2	0	0	1	0	0	3
Arizona	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arkansas	30	0	69	4	11	33	5	0	1	0	0	1	1	8
California	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colorado	95	0	149	22	68	61	6	2	0	0	2	0	16	31
Georgia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Illinois	125	0	453	60	245	273	105	5	7	24	4	5	17	69
Indiana	31	0	155	15	112	109	45	0	1	1	0	1	1	16
Iowa	20	0	2	2	2	17	8	0	6	0	0	4	7	6
Kansas	6	0	12	1	2	12	10	0	0	0	0	0	1	2
Kentucky	575	0	1,440	261	1,013	1,066	317	1	51	8	1	22	65	295
Maryland	9	0	19	3	8	9	1	0	0	0	0	0	1	5
Michigan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Missouri	23	0	16	2	7	24	17	0	1	0	0	1	8	8
Montana	15	0	5	3	4	3	0	0	0	0	0	0	2	5
New Mexico	11	0	4	0	0	0	0	0	0	0	0	0	3	4
N. Carolina	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N. Dakota	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Ohio	128	0	259	46	165	199	42	0	0	3	0	0	3	56
Oklahoma	24	19	42	4	12	20	8	1	0	0	1	0	2	7
Oregon	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pa. (anth.)	453	0	282	73	141	159	115	7	1	1	3	1	102	162
Pa. (bit.)	592	0	1,048	105	239	268	120	1	6	3	1	4	111	293
Tennessee	63	0	151	25	115	110	53	2	2	2	2	0	12	22
Texas	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utah	54	0	153	11	24	24	0	0	1	0	0	1	3	15
Virginia	187	0	606	104	404	398	103	7	32	2	4	14	12	90
Washington	22	21	22	9	10	9	0	0	0	0	0	0	1	10
West Virginia	1,044	0	2,877	365	960	976	339	8	29	0	8	11	102	525
Wyoming	29	2/34	50	3	3	3	0	0	0	0	0	0	4	11
Totals	3,664	2/76	7,928	1,139	3,593	3,827	1,313	36	138	44	27	65	512	1,688

1/ Included in Title II mine inspections.
2/ Includes 5 inspections in Wyoming 1952.

TABLE 2. - Withdrawal orders issued under Sec. 203(a) for imminent danger, by States, July 16, 1952 - December 31, 1953

Conditions constituting imminent danger	Alaska	Colorado	Illinois	Kentucky	Oklahoma	Pa. (anth.)	Pa. (bit.)	Tennessee	Virginia	W. Virginia	Total
Man-trip:											
Dangerous roof............	1	-	-	-	-	-	-	2	7	4	14
Poor track and equipment..	-	-	-	-	-	-	-	-	-	1	1
Man-hoist:											
Rope in poor condition....	-	1	-	-	-	-	-	-	-	-	1
Mine fire:											
Active fire adjacent to producing area..........	1	-	-	-	-	-	-	-	-	-	1
Electric-arc hazards and accumulated coal and coal dust...............	-	-	1	-	-	-	-	-	-	-	1
Poor electrical installation....................	-	-	-	-	-	-	-	-	1	-	1
Mine explosion:											
Excessive methane liberations	-	1	-	-	-	-	-	-	-	-	1
Methane and dust accumulations	-	-	3	-	1	-	-	-	-	-	4
Methane accumulation	-	-	1	-	-	6	-	-	-	1	8
Leak in surface gasoline line	-	-	-	-	-	-	1	-	-	-	1
Inadequate rock dusting...	-	-	-	-	-	-	-	-	-	3	3
Inundation:											
Working under body of water	-	-	-	1	-	-	-	-	-	-	1
Advancing toward abandoned workings	-	-	-	-	-	1	-	-	1	-	2
Inflow of oxygen-deficient air	-	-	-	-	-	-	-	-	1	-	1
Total	2	2	5	1	1	7	1	2	10	9	40

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TABLE 3. - Withdrawal orders issued under Sec. 203(c) for failure to abate violations of Sec. 209, by States

Sections violated	Arkansas	Illinois	Indiana	Iowa	Kentucky	Missouri	Ohio	Pa. (anth.)	Pa. (bit.)	Tennessee	Utah	Virginia	W. Virginia	Total
209(c)	-	-	-	-	3	-	-	-	2	-	-	-	6	11
209(d)(1)	1	1	-	-	7	1	1	1	2	-	-	5	2	21
209(d)(6)	-	1	-	-	1	-	-	-	1	-	-	-	3	6
209(d)(8)	-	-	-	-	6	-	1	-	-	-	-	-	-	7
309(d)(9)	-	-	1	-	2	-	-	-	-	-	-	-	1	4
209(e)(1)	-	1	-	-	14	-	-	-	-	1	-	12	5	33
209(e)(3)	-	1	-	4	7	-	1	-	1	-	-	5	3	22
209(e)(4)	-	-	-	-	5	-	-	-	1	-	-	-	1	7
209(e)(5)	-	-	-	-	9	-	-	-	1	1	-	10	3	24
209(f)(1)	-	-	-	-	1	-	-	-	-	-	-	-	1	2
209(g)(1)	-	1	-	-	2	-	-	-	-	-	-	2	3	8
209(h)(2)	-	-	-	-	-	-	-	-	-	-	1	-	1	2
209(h)(5)	-	2	-	2	-	-	-	-	-	-	-	-	-	4
Total	1	7	1	6	57	1	3	1	8	2	1	34	29	151

Appendix C

Data pertaining to serious hazards observed

	Title I Mines			Title II Mines		
State	Inspec-tions	Serious hazard letters sent to State agency	Percent of inspections revealing serious hazards	Inspec-tions	Serious hazard letters sent to State agency	Percent of inspections revealing serious hazards
Alabama	421	375	89	120	9	8
Alaska	2	0	0	7	0	0
Arizona	5	0	0	0	0	-
Arkansas	43	38	88	30	22	73
California	0	0	-	0	0	-
Colorado	342	61	18	95	1	1
Georgia	6	6	100	0	0	-
Illinois	74	46	62	125	61	49
Indiana	44	20	45	31	9	29
Iowa	73	33	45	20	0	0
Kansas	16	7	44	6	6	100
Kentucky	598	479	80	575	49	9
Maryland	57	19	33	9	2	22
Michigan	0	0	-	0	0	-
Missouri	41	29	71	23	17	74
Montana	104	56	54	15	1	7
New Mexico	101	0	0	11	0	0
No. Carolina	0	0	-	0	0	-
No. Dakota	12	2	17	1	0	0
Ohio	269	227	84	128	40	31
Oklahoma	30	19	63	24	2	8
Oregon	3	2	67	0	0	-
Pa. (anth.)	298	79	27	453	12	3
Pa. (bit.)	337	139	41	592	25	4
Tennessee	493	452	92	63	9	14
Texas	0	0	-	0	0	-
Utah	92	72	78	54	3	6
Virginia	428	394	92	187	34	18
Washington	19	13	68	22	0	0
West Virginia	622	246	40	1,044	33	3
Wyoming	37	23	62	29	0	0
National data	4,567	2,837	62	3,664	335	9

Appendix D

Orders appealed to the Director and the Federal Coal Mine Safety Board of Review July 16, 1952 - December 31, 1953

	Director	Board
Appeals on orders classifying mines gassy under Sec. 203(d)		
Glenmar No. 1 Moshannon-Smithing Coal Co. Beccaria, Pa.	Denied 12/31/52.	Denied 2/24/53.
Maxton Slope Morrisdale Mining Co. Hawk Run, Pa.		Denied 10/18/52.
Ponfeigh Pine Hill Pine Hill Smokeless Coal Co. Garrett, Pa.	Order annulled 3/2/53.	
Seaboard No. 1 Rebecca Coal Co. Richlands, Va.	Denied 6/16/53.	Appeal 7/8/53. Hearing 11/10-11/53. Order annulled 12/3/53.
Carnegie Clean Coal Co. Bellaire, Ohio	Denied 7/30/53. Appeal not made in 20 days.	
Haws No. 7 Haws Refractories Co. Johnstown, Pa.	Denied 8/10/53.	
Appeal on withdrawal order issued under Sec. 203(a) for imminent danger		
Kleaner No. 1 Kleaner Coal Co. Bokoshe, Okla.	Act prohibits appeal to Director - State-participation plan.	Appeal made 9/27/53. Hearing 10/2/53. Annulled 10/2/53.
Appeal on withdrawal order issued under Sec. 203(c) for failure to abate violation of Sec. 209(d)(9)		
Talleydale Snow Hill Coal Corp. Terre Haute, Ind.	Violation abated and order annulled 8/4/53.	Appeal made for temporary relief 6/5/53. Hearing 6/17/53. Time extended until 7/11/53.

Appendix E

TABLE 1. - Number of active coal mines in the Nation - 1953

State	Underground mines			Strip mines	Total mines
	Title I	Title II	Total		
Alabama..............	366	43	409	30	439
Alaska...............	1	3	4	6	10
Arizona..............	3	0	3	0	3
Arkansas	34	9	43	5	48
California...........	0	0	0	0	0
Colorado.............	123	35	158	8	166
Georgia..............	8	0	8	0	8
Illinois.............	92	1/93	185	46	237
Indiana..............	48	21	69	47	116
Iowa.................	39	7	46	37	83
Kansas...............	6	2	8	9	17
Kentucky.............	1,168	2/305	1,473	83	1,556
Maryland.............	30	3/11	41	3	44
Michigan.............	0	0	0	0	0
Missouri.............	24	8	32	10	42
Montana..............	50	5	55	39	94
New Mexico...........	55	5	60	5	65
No. Carolina.........	0	0	0	0	0
No. Dakota...........	17	1	18	47	65
Ohio.................	207	56	263	87	350
Oklahoma.............	20	7	27	11	38
Oregon...............	3	0	3	0	3
Pa. (anthr.).........	233	162	395	15	410
Pa. (bit.)...........	511	295	806	403	1,209
Tennessee............	510	25	535	25	560
Texas................	0	0	0	0	0
Utah.................	42	15	57	0	57
Virginia.............	618	90	708	30	738
Washington...........	12	10	22	4	26
West Virginia........	419	4/628	1,047	153	1,200
Wyoming..............	16	11	27	10	37
Totals	4,655	1,847	6,502	1,113	7,615

1/ 24 mines temporarily inactive part of the year and could not be inspected.
2/ 20 mines temporarily inactive part of the year and could not be inspected.
3/ 6 mines temporarily inactive part of the year and could not be inspected.
4/ 103 mines temporarily inactive part of the year and could not be inspected.

TABLE 2. - Number of regular inspections, surveys, and investigations of disasters and fatal accidents since 1941

Period	Region	Field headquarters	Inspections			Surveys				Investigations of fatalities and disasters
			Original	Reinspections	Total	Elec-trical	Explo-sives	Venti-lation	Dust	
1941-1952	All	All................	12,005	41,811	53,816	187	242	24	36	1,678
1953	I	Anchorage..........	1	8	9	0	0	0	0	2
	II	Seattle............	19	144	163	0	0	0	3	3
	IV	Denver.............	19	516	535	5	0	1	1	5
		Salt Lake City.....	3	191	194	0	0	0	0	12
		Phoenix............	1	36	37	0	0	0	0	0
		Total............	23	743	766	5	0	1	1	17
	V	Duluth.............	7	99	106	4	3	0	0	3
	VI	McAlester..........	10	203	213	0	0	0	0	4
	VII	Birmingham.........	97	450	547	0	0	0	0	12
		Jellico............	196	360	556	0	0	0	0	11
		Total............	293	810	1,103	0	0	0	0	23
	VIII	Pittsburgh.........	36	392	428	0	0	0	0	53
		Johnstown..........	57	444	501	0	1	0	0	24
		St. Clairsville....	34	394	428	0	0	0	0	22
		Fairmont...........	67	602	669	0	0	0	0	32
		Mt. Hope...........	140	892	1,032	11	2	0	0	90
		Norton.............	459	737	1,196	2	0	0	0	56
		Barbourville.......	143	319	462	11	0	0	0	21
		Vincennes..........	28	376	404	3	0	4	0	48
		Wilkes-Barre.......	108	643	751	0	0	0	0	67
		Total............	1,072	4,799	5,871	27	3	4	0	413
		Totals 1953......	1,425	6,806	8,231	36	6	5	4	465
		Grand totals.....	13,430	48,617	62,047	223	248	29	40	2,143

TABLE 3. - Mines inspected, regular inspections, and average inspections per active mine - 1953

State	Mines inspected				Inspections made				Average inspections per active mine			
	A	B	C	Total	A	B	C	Total	A	B	C	All mines
Alabama...........	274	44	30	348	391	120	30	541	1.1	2.8	1.0	1.2
Alaska............	0	3	2	5	0	7	2	9	0	2.3	.3	.9
Arizona...........	3	0	0	3	5	0	0	5	1.7	0	0	1.7
Arkansas..........	32	8	5	45	38	30	5	73	1.1	3.3	1.0	1.5
California........	0	0	0	0	0	0	0	0	0	0	0	0
Colorado..........	127	31	8	166	332	95	10	437	2.7	2.7	1.3	2.6
Georgia...........	6	0	0	6	6	0	0	6	.8	0	0	.8
Illinois..........	42	69	27	138	47	125	27	199	.5	1.3	.6	.9
Indiana...........	19	16	24	59	20	31	24	75	.4	1.5	.7	.6
Iowa..............	29	6	27	62	46	20	27	93	1.2	2.9	2.5	1.1
Kansas............	6	2	9	17	7	6	9	22	1.2	3.0	1.0	1.3
Kentucky..........	539	295	26	860	572	575	26	1,173	.5	1.9	.3	.8
Maryland..........	37	5	0	42	57	9	0	66	1.9	.9	0	1.5
Michigan..........	0	0	0	0	0	0	0	0	0	0	0	0
Missouri..........	21	8	11	40	30	23	11	64	1.3	2.9	1.1	1.5
Montana...........	49	5	23	77	77	15	27	119	1.5	3.0	.7	1.3
New Mexico........	48	4	4	56	97	11	4	112	1.8	2.2	.8	1.7
No. Carolina......	0	0	0	0	0	0	0	0	0	0	0	0
No. Dakota........	1	1	10	12	2	1	10	13	.1	1.0	.2	.2
Ohio..............	167	56	28	251	241	128	28	397	1.2	2.3	.3	1.1
Oklahoma..........	15	7	9	31	21	24	9	54	1.1	3.4	.8	1.4
Oregon............	3	0	0	3	3	0	0	3	1.0	0	0	1.0
Pa. (anth.).......	233	162	15	410	283	453	15	751	1.2	2.8	1.0	1.8
Pa. (bit.)........	255	293	41	589	296	592	41	929	.6	2.0	.1	.8
Tennessee.........	412	22	25	459	468	63	25	556	.9	2.5	1.0	1.0
Texas.............	0	0	0	0	0	0	0	0	0	0	0	0
Utah..............	42	15	0	57	92	54	0	146	2.2	3.6	0	2.6
Virginia..........	391	90	0	481	428	187	0	615	.7	2.1	0	.8
Washington........	12	10	4	26	15	22	4	41	1.3	2.2	1.0	1.6
West Virginia.....	437	525	2	964	620	1044	2	1666	1.5	1.7	0	1.4
Wyoming...........	16	11	10	37	25	29	12	66	1.6	2.6	1.2	1.8
National data.....	3216	1688	340	5244	4219	3664	348	8231	.9	2.0	.3	1.1

A - Title I underground mines.
B - Title II mines.
C - Strip mines.

TABLE 4. - Average man-days to complete regular inspections and reports

	Underground mines				Strip mines		Average all mines	
	Title I		Title II					
State	A	B	A	B	A	B	A	B
Alabama............	0.8	0.5	4.3	0.7	1.0	0.4	1.6	0.6
Alaska.............	0	0	3.4	1.1	4.5	1.7	3.6	1.2
Arizona............	1.0	.6	0	0	0	0	1.0	.6
Arkansas...........	1.6	1.4	3.9	2.0	1.4	.8	2.6	1.6
California.........	0	0	0	0	0	0	0	0
Colorado...........	1.3	.9	3.0	1.2	1.1	1.0	1.6	1.0
Georgia............	.3	.5	0	0	0	0	.3	.5
Illinois...........	1.9	1.0	6.0	1.4	1.7	.7	4.4	1.2
Indiana............	1.4	1.3	5.2	2.0	1.2	.8	2.9	1.4
Iowa...............	1.1	.6	1.0	.6	.7	.5	1.0	.6
Kansas.............	1.5	1.4	3.3	2.2	1.0	.9	1.8	1.4
Kentucky...........	1.3	1.2	3.1	1.1	1.2	.8	2.2	1.2
Maryland...........	.9	1.1	2.1	1.3	0	0	1.1	1.1
Michigan...........	0	0	0	0	0	0	0	0
Missouri...........	1.3	1.3	1.8	1.8	1.6	.9	1.6	1.4
Montana............	.9	.5	2.4	.9	.7	.4	1.1	.6
New Mexico.........	1.1	.7	3.5	1.0	1.3	.8	1.3	.7
No. Carolina.......	0	0	0	0	0	0	0	0
No. Dakota.........	2.5	.5	3.0	1.0	1.9	.4	2.0	.5
Ohio...............	1.0	1.0	3.1	1.0	1.3	.7	1.7	1.0
Oklahoma...........	1.3	1.5	4.5	2.3	1.0	1.0	2.7	1.8
Oregon.............	2.7	.7	0	0	0	0	2.7	.7
Pa. (anth.)........	1.0	1.1	6.1	1.3	.8	.8	4.1	1.2
Pa. (bit.).........	1.0	1.2	4.2	1.2	1.0	.7	3.0	1.2
Tennessee..........	.7	.6	4.4	1.2	.6	.5	1.1	.7
Texas..............	0	0	0	0	0	0	0	0
Utah...............	1.2	.5	5.0	.8	0	0	2.6	.6
Virginia...........	1.3	1.3	3.7	1.3	0	0	2.1	1.3
Washington.........	1.8	1.0	3.9	.7	1.5	.5	2.9	.8
West Virginia......	1.0	1.0	3.8	1.1	1.0	1.0	2.7	1.1
Wyoming............	1.2	.8	5.1	.7	1.6	.6	3.0	.7
National data......	1.1	1.0	4.1	1.2	1.1	.7	2.4	1.0

A - Average days to complete regular inspection. Includes inspection, travel, preparing and posting preliminary report, conference with mine personnel, and preparing data book and sampling cards.

B - Average days for inspector to prepare rough draft of final inspection report.

TABLE 5. - Special inspections required under Title II

Region	Field Headquarters	Special inspections	Man-days making special inspections		Regular inspections Title II mines	Average additional man-days per regular inspection	Average cost per special inspection	Total cost of special inspections
			Total	Avg. per special inspection				
I	Anchorage............	7	13	1.9	7	1.9	$ 78.84	$ 551.91
II	Seattle..............	16	24	1.5	37	.6	37.09	593.37
IV	Denver...............	57	76	1.3	107	.7	123.69	7,050.72
	Salt Lake City........	27	24	.9	82	.3	36.12	975.37
	Phoenix..............	0	0	0	0	0	0	0
V	Duluth...............	25	43	1.7	21	2.0	70.80	1,770.00
VI	McAlester............	82	137	1.7	83	1.7	64.02	5,249.30
VII	Birmingham...........	62	49	.8	120	.4	27.29	1,691.99
	Jellico..............	97	82	.8	63	1.3	36.08	2,958.60
VIII	Pittsburgh...........	145	150	1.0	281	.5	32.62	4,730.00
	Johnstown............	147	134	.9	311	.4	27.19	3,996.39
	St. Clairsville.......	169	124	.7	145	.9	22.10	3,734.56
	Fairmont.............	152	149	1.0	291	.5	32.15	4,886.80
	Mt. Hope.............	963	963	1.0	745	1.3	33.09	31,868.11
	Norton...............	596	507	.9	476	1.1	27.01	16,098.00
	Barbourville.........	408	420	1.0	226	1.9	33.68	13,743.39
	Vincennes............	425	478	1.1	216	2.2	36.66	15,583.25
	Wilkes-Barre.........	244	309	1.3	453	.7	34.61	8,444.88
	National data.........	3,622	3,682	1.0	3,664	1.0	34.21	123,926.64

TABLE 6. - Average man-days required to complete inspections of Title II mines

Field-station	Under P.L. 49 fiscal 1952	Under Title II calendar 1953		
	Average man-days per regular inspection	Average man-days per regular inspection	Average man-days special inspections per regular inspection	Average total time
Anchorage............	4.0	3.4	1.9	5.3
Seattle..............	2.0	3.3	.6	3.9
Denver...............	1.8	3.0	.7	3.7
Salt Lake City.......	3.2	5.0	.3	5.3
Phoenix..............	.8	0	0	0
Duluth...............	1.5	1.1	2.0	3.1
McAlester............	1.7	3.5	1.7	5.2
Birmingham...........	1.6	4.3	.4	4.7
Jellico..............	1.6	4.4	1.3	5.7
Pittsburgh...........	3.6	4.4	.5	4.9
Johnstown............	3.3	4.0	.4	4.4
St. Clairsville......	2.3	3.2	.9	4.1
Fairmont.............	3.2	3.5	.5	4.0
Mt. Hope.............	3.4	3.8	1.3	5.1
Norton...............	1.9	3.7	1.1	4.8
Barbourville.........	1.7	2.6	1.9	4.5
Vincennes............	3.6	4.9	2.2	5.1
Wilkes-Barre.........	5.1	6.1	.7	6.8
Total.............	2.8	4.1	1.0	5.1
Average time to write inspection reports..	1.0			1.2
Total average time Title II mines....	3.8			6.3

Appendix F

Violations of the Federal Mine Safety Codes

State	Title I mines: Mines inspected	Title I mines: Violations reported[1]	Title I mines: Average violations per mine inspected	Title I mines: Mines free of violations	Title II mines: Mines inspected	Title II mines: Violations reported[1]	Title II mines: Average violations per mine inspected	Title II mines: Mines free of violations
Alabama..............	304	6,817	22	1	44	435	10	11
Alaska...............	2	42	21	0	3	111	37	0
Arizona..............	3	32	11	0	0	0	-	-
Arkansas.............	37	1,417	38	0	8	310	39	0
California...........	0	0	-	-	0	0	-	-
Colorado.............	135	1,327	10	9	31	396	13	6
Georgia..............	6	136	23	0	0	0	-	-
Illinois.............	69	928	13	0	69	1,252	18	0
Indiana..............	43	494	11	0	16	362	23	0
Iowa.................	56	855	15	0	6	108	18	0
Kansas...............	15	379	25	0	2	110	55	0
Kentucky.............	565	10,741	19	0	295	4,667	16	8
Maryland.............	37	1,062	29	0	5	0	0	0
Michigan.............	0	0	-	-	0	0	-	-
Missouri.............	32	774	24	0	8	260	32	0
Montana..............	72	491	7	2	5	35	7	1
New Mexico...........	52	380	7	3	4	22	5	3
N. Carolina..........	0	0	-	-	0	0	-	-
N. Dakota............	11	60	5	1	1	4	4	0
Ohio.................	195	4,950	25	0	56	1,290	23	1
Oklahoma.............	24	575	24	0	7	176	25	2
Oregon...............	3	21	7	0	0	0	-	-
Pa. (anthr.).........	248	2,282	9	1	162	1,674	10	7
Pa. (bit.)...........	296	4,066	14	1	293	3,575	12	22
Tennessee............	437	8,419	19	0	22	674	31	0
Texas................	0	0	-	-	0	0	-	-
Utah.................	42	531	13	0	15	296	20	0
Virginia.............	391	8,666	22	0	90	1,584	18	0
Washington...........	16	124	8	2	10	98	10	0
West Virginia........	439	11,414	26	1	525	6,395	12	21
Wyoming..............	26	279	11	2	11	170	15	1
National data........	3,556	67,262	19	23	1,688	24,004	14	83

1/ These include all violations found during first inspections made during the year and all new violations found during subsequent inspections.

Appendix G

Percent of Compliance With Recommendations of Federal Inspectors on Violations of the Federal Mine Safety Codes

	7/1/47 to 6/30/48	7/1/48 to 6/30/49	7/1/49 to 6/30/50	7/1/50 to 6/30/51	7/1/51 to 6/30/52	7/1/52 to 12/31/52 Title I	1/1/53 to 12/31/53 Title I	1/1/53 to 12/31/53 Title II
Alabama.....	41	12	13	11	13	7	8	63
Alaska......	-	-	20	-	26	0	17	62
Arizona.....	66	33	28	38	50	0	26	-
Arkansas....	24	15	23	19	8	-	10	62
California..	-	-	-	-	-	-	-	-
Colorado....	53	31	45	42	50	35	53	62
Georgia.....	-	-	1	6	6	4	2	-
Illinois....	38	24	32	22	20	17	23	34
Indiana.....	37	23	31	27	23	22	25	40
Iowa........	13	12	10	14	7	11	14	21
Kansas......	7	9	15	16	10	2	16	52
Kentucky....	35	18	21	19	25	7	12	40
Maryland....	45	31	23	25	25	19	10	16
Michigan....	36	20	7	41	27	-	-	-
Missouri....	26	8	3	10	9	4	13	30
Montana.....	28	27	17	28	25	15	13	48
New Mexico..	46	33	50	49	49	19	52	50
N. Carolina.	-	-	0	22	38	-	-	-
N. Dakota...	47	40	39	49	24	31	20	33
Ohio........	39	22	16	23	19	16	22	40
Oklahoma....	24	21	25	23	18	8	14	57
Oregon......	49	-	0	39	32	-	9	-
Pa. (anth.).	25	31	41	26	29	17	14	39
Pa. (bit.)..	59	38	35	40	37	29	24	56
Tennessee...	29	11	13	13	14	9	9	38
Texas.......	-	-	-	-	-	-	-	-
Utah........	52	42	60	55	47	27	33	90
Virginia....	37	23	16	23	19	7	8	40
Washington..	37	26	40	32	28	14	16	33
W. Virginia.	41	39	43	44	40	17	18	47
Wyoming.....	45	26	49	45	40	19	25	89
National Avg.	41	28	30	27	27	13	15	46

Appendix H

TABLE 1. - Title I mines at which no violations of the Federal Mine Safety Codes were observed during an inspection

	1953	
State	Mine	Company
Alabama..........	Sayre[1]	Republic Steel Corp.
Colorado.........	Pictou No. 2	Colorado Fuel and Iron Corp.
Do...........	Calumet No. 2	Delcarbon Coal Co.
Do...........	Canon Liberty	Liberty Mining Co.
Do...........	Starkville No. 4	Scott and Ruiz Coal Co.
Do...........	Hunter	Claude O. Halcumb, owner
Do...........	Hay Gulch No. 2	Hay Gulch Coal Co.
Do...........	Engleville	Guadagnolia Brothers Coal Co.
Do...........	Columbine	LeRoy R. Crane, lessee
Do...........	Rex Carbon	Rex Carbon Fuel Co.
Montana..........	Peuse[1]	Gordon Peuse, operator
Do...........	Rosebud[1]	Foley Brothers, Inc.
New Mexico.......	New Yankee No. 1	Maschio Coal Co.
Do...........	Turner No. 2	Barney Urtado, operator
Do...........	Genta	Frank Genta, owner
North Dakota.....	Dakota Star[1]	Truax-Traer Coal Co.
Pennsylvania.....	Alaska No. 15	Mudry and Co.
Washington.......	Russell Gillett[1]	Russell-Gillett Co.
Do.	Monarch[1]	Monarch Coal Processing Co.
West Virginia....	No. 1	Williams Branch Coal Co.
Wyoming..........	Welch[1]	Welch Coal Co.
Do.	Peacock[1]	Nugget Coal Co.

[1] Strip mines.

TABLE 2. - Title II mines at which no violations of the Federal Mine Safety Codes were observed during an inspection

	1953	
State	Mine	Company
Alabama..........	Praco[1]	Alabama By-Products Corp.
Do...........	Dolomite No. 3[1]	Woodward Iron Co.
Do...........	Labuco[1]	Alabama By-Products Corp.
Do...........	Mulga[1]	Woodward Iron Co.
Do...........	Concord No. 1[1]	Tennessee Coal and Iron Division, United States Steel Corp.
Do...........	Short Creek No. 19[1]	Do.
Do...........	Edgewater[1]	Do.
Do...........	Docena[1]	Do.
Do...........	Sayre[1]	Republic Steel Corp.
Do...........	Maxine[1]	Alabama By-Products Corp.
Do...........	Sayreton No. 1[1]	Republic Steel Corp.
Colorado.........	Imperial[1]	Imperial Coal Co.
Do...........	Eagle[1]	Do.
Do...........	Pictou	Colorado Fuel and Iron Corp.

TABLE 2. - Title II mines at which no violations of the Federal Mine Safety Codes were observed during an inspection (Con.)

	1953	
State	Mine	Company
Colorado..........	Frederick[1]	Colorado Fuel and Iron Corp.
Do............	Bear Canon No. 6[1]	Bear Canon Coal Co.
Do............	Hawk's Nest[1]	Champion Coal Co.
Kentucky..........	Thacker No. 5[1]	Norfolk & Western Railway Co., Fuel Department
Do............	Freeport[1]	Do.
Do............	Price No. 1	Inland Steel Co.
Do............	Wheelwright	Do.
Do............	Hendrix[1]	Consolidation Coal Co. (Ky.)
Do............	Republic	Republic Steel Corp.
Do............	Winifrede No. 2	Norfolk & Western Railway Co., Fuel Department
Do............	Price No. 2	Inland Steel Co.
Montana...........	Keene No. 2[1]	Blair-Collins Co.
New Mexico........	Brilliant No. 2	St. Louis, Rocky Mt. & Pacific Co.
Do............	Van Houten No. 6[1]	Do.
Do............	Koehler Nos. 1 and 2[1]	Do.
Ohio..............	Martins Ferry[1]	Consumers Mining Co.
Oklahoma..........	Carbon No. 5[1]	Lone Star Steel Co.
Do............	McCurtin	Do.
Pennsylvania......	Bowman No. 2 (bit.)[1]	Bowman Coal Co.
Do............	Carpentertown (bit.)[1]	Carpentertown Coal & Coke Co.
Do............	Harwick (bit.)[1]	Duquesne Light Co.
Do............	Dunkard No. 2 (bit.)[1]	Island Coal Co.
Do............	Banning No. 3 (bit.)[1]	Republic Steel Corp.
Do............	Collier (bit.)[1]	United States Steel Corp. Coal Div., Frick Dist.
Do............	Karen (bit.)[1]	Do.
Do............	Leisenring No. 1 (bit.)	Do.
Do............	Leisenring No. 2 (bit.)	Do.
Do............	Leisenring No. 3 (bit.)[1]	Do.
Do............	Maxwell (bit.)[1]	Do.
Do............	National No. 1 (bit.)	Do.
Do............	National No. 3 (bit.)	Do.
Do............	Palmer (bit.)	Do.
Do............	Ronco (bit.)[1]	Do.
Do............	Adams (bit.)	Westmoreland Coal Co.
Do............	No. 1 (bit.)[1]	Patton Clay Mfg. Co.
Do............	Eureka No. 40 Upper (bit.)	Berwind-White Coal Mining Co.
Do............	Imperial Moshannon No. 1 (bit.)[1]	Imperial Coal Corp.
Do............	Statler No. 11 (bit.)	Statler Coal Co.
Do............	Rowles No. 7 (bit.)[1]	North American Refractories Co.
Do............	Helvetia (bit.)[1]	Rochester and Pittsburgh Coal Co.
Do............	Kirmar Slope (anth.)[1]	Biscontini and Sons Coal Co.
Do............	No. 58 Slope (anth.)[1]	Do.
Do............	No. 1 Slope (anth.)[1]	Newport Excavating Co.
Do............	No. 2A Slope (anth.)[1]	Do.
Do............	No. 2 Slope (anth.)[1]	Do.

TABLE 2. - Title II mines at which no violations of the Federal Mine Safety Codes were observed during an inspection (Con.)

1953		
State	Mine	Company
Pennsylvania.....	No. 2 Shaft, No. 7 Colliery (anth.)	Susquehanna Collieries Div., The M. A Hanna Co.
Do...........	No. 16 Slope, No. 7 Coll'y.1/	Do.
West Virginia....	No. 17 Top1/	Red Jacket Coal Corp.
Do...........	Donegan 3C	Donegan Coal & Coke Co.
Do...........	Burton	Richwood-Sewall Coal Co.
Do...........	Page	Page Coal & Coke Co.
Do...........	Sterling Sewall	Mount Hope Coal Co.
Do...........	Coal Mtn. No. 12	Red Jacket Coal Corp.
Do...........	No. 6	Pocahontas Fuel Co., Inc.
Do...........	No. 6	Arlington Poca. Coal Co.
Do...........	Sewall Chief	Woolridge Coal Co.
Do...........	No. 31/	Red Bird Mining Co.
Do...........	No. 2	Snap Creek Coal Co.
Do...........	No. 9	Page Coal & Coke Co.
Do...........	No. 11	Maust Coal & Coke Co.
Do...........	Wyoming	Red Jacket Coal Corp.
Do...........	No. 61/	United States Steel Corp., Coal Div.
Do...........	No. 101/	Do.
Do...........	No. 6 East1/	Do.
Do...........	No. 91/	Do.
Do...........	No. 14, #3 Seam Portal1/	Do.
Do...........	No. 21/	Do.
Do...........	No. 31/	Do.
Wyoming..........	Peacock No. 121/	Nugget Coal Co.

1/ Mines appear in both table 2 and 3.

TABLE 3. - Title II mines at which no imminent dangers (Sec. 203(a)) or violations of Sec. 209 under Title II were observed during an inspection

1953		
State	Mine	Company
Alabama..........	New Banner	Davidson-Pratt Mining Co.
Do...........	Praco1/	Alabama By-Products Corp.
Do...........	No. 1	Wood & Burleson Coal Co.
Do...........	Warrior River No. 4	Brookside-Pratt Mining Co.
Do...........	New Piper No. 2	Coleanor-Piper Coal Co.
Do...........	Gorgas No. 4	Alabama Power Co.
Do...........	Hamilton	Tennessee Coal & Iron Division of the United States Steel Corp.
Do...........	Sayre1/	Republic Steel Corp.
Do...........	America No. 4	Stith Coal Co.
Do...........	Bessie	United States Pipe & Foundry Co.
Do...........	Dolomite No. 31/	Woodward Iron Co.
Do...........	Labuco1/	Alabama By-Products Corp.

TABLE 3. - Title II mines at which no imminent dangers (Sec. 203(a)) or violations of Sec. 209 under Title II were observed during an inspection (Con.)

	1953	
State	Mine	Company
Alabama..........	Concord No. 1[1]	Tennessee Coal & Iron Division of the United States Steel Corp.
Do...........	Dixie	Dixie Fire Brick Co.
Do...........	Kellerman No. 19	Twin Seam Mining Co.
Do...........	Barney	Alabama By-Products Corp.
Do...........	Flat Top	United States Pipe & Foundry Co.
Do...........	Black Diamond Nos. 1 and 2	Black Diamond Coal Mining Co.
Do...........	Thermal No. 1	Alabama By-Products Corp.
Do...........	Blocton No. 9	Black Diamond Coal Mining Co.
Do...........	Docena[1]	Tennessee Coal & Iron Division of the United States Steel Corp.
Do...........	Empire No. 3	DeBardeleben Coal Corp.
Do...........	Mulga[1]	Woodward Iron Co.
Do...........	New River	Brookside-Pratt Mining Co.
Do...........	Sayreton No. 2	Republic Steel Corp.
Do...........	Moro No. 3	Moro Brothers Coal Co.
Do...........	Bradford	Alabama By-Products Corp.
Do...........	No. 2	G. M. Phillips
Do...........	Sayreton No. 1[1]	Republic Steel Corp.
Do...........	Maxine[1]	Alabama By-Products Corp.
Do...........	Virginia	Republic Steel Corp.
Do...........	Short Creek No. 19[1]	Tennessee Coal & Iron Division of the United States Steel Corp.
Do...........	No. 3	Wood & Burleson Coal Co.
Do...........	No. 9	Davidson Coal Co.
Do...........	Aldridge Shaft	Stith Coal Co.
Do...........	Blue Creek	Black Diamond Coal Mining Co.
Do...........	Edgewater[1]	Tennessee Coal & Iron Division of the United States Steel Corp.
Do...........	Gorgas No. 3	Alabama Power Co.
Arkansas.........	Clarksville	Clarksville Coal Co.
Colorado.........	Imperial[1]	Imperial Coal Co.
Do...........	Nu-Mine	Nu-Mine Coal Co.
Do...........	Eagle[1]	Imperial Coal Co.
Do...........	Arrowhead	Arrowhead Coal Co.
Do...........	Frederick[1]	Colorado Fuel & Iron Corp.
Do...........	Morley	Do.
Do...........	Bear Canon No. 6[1]	Bear Canon Coal Co.
Do...........	Morning Glory	Minnequa Coal Co.
Do...........	Harris	Colorado-Utah Coal Co.
Do...........	Kebler No. 2	Colorado Fuel & Iron Corp.
Do...........	Rapson No. 2	Taylor Coal Mining Co.
Do...........	Sterling	McNeil Coal Corp.
Do...........	Red Wing	Colowyo Coal Co.
Do...........	Hawk's Nest[1]	Champion Coal Co.
Do...........	Edwards	Clark Coal Co.
Do...........	Calumet No. 2	Delcarbon Coal Co.

TABLE 3. - Title II mines at which no imminent dangers (Sec. 203(a)) or violations of Sec. 209 under Title II were observed during an inspection (Con.)

	1953	
State	Mine	Company
Illinois	No. 10	Peabody Coal Co.
Do	Glenridge	Marion County Coal Mining Corp.
Do	Belle Valley	Belle Valley Coal Co.
Do	Murdock	Bell and Zoller Coal Co.
Do	No. 3	Superior Coal Co.
Do	New Kathleen	Union Colliery Co.
Do	Crown	Freeman Coal Mining Corp.
Do	Saint Ellen	Perry Coal Co.
Do	Eddy	Eddy Coal Co.
Do	Bois	Bois Coal Co.
Do	No. 4	Superior Coal Co.
Do	Cherry Hill	Cherry Hill Coal Co.
Do	New Wilson	Cutler Coal Co., Inc.
Do	Moffat No. 2	Moffat Coal Co.
Do	Green Diamond	Mid-Continent Coal Corp.
Do	Mary Kay	New West Side Coal Co.
Indiana	Regent	Linton-Summit Coal Co.
Iowa	New Sterling No. 3	Sunshine Coal Co.
Do	No. 4	Do.
Do	Riverside	Riverside Coal Co.
Do	Old King	Old King Coal Co.
Do	No. 3	Lovilia Coal Co.
Do	D. C.	D. C. Coal Co.
Do	Shamrock	Shamrock Coal Co.
Kansas	DeGasperi	DeGasperi Coal Co.
Kentucky	Clover Splint	Closplint Coal Co.
Do	No. 204	Consolidation Coal Co.
Do	No. 1	Tutor Key Coal Co.
Do	Asbury	D. J. B. Collieries, Inc.
Do	Wisconsin Steel #2	International Harvester Co.
Do	Republic No. 4	Republic Steel Corp.
Do	No. 1	Cooley Elkhorn Coal Co.
Do	Silver Ridge	Correale Coal Co.
Do	No. W-9	May and Stewart Coal Co.
Do	Majestic No. 1	Majestic Collieries
Do	Majestic Nos. 2-4	Do.
Do	Liberty No. 2	Liberty Coal Co.
Do	Hilo No. 2	High Splint Coal Co.
Do	No. 3	Middle Point Coal Co.
Do	Freeburn No. 2	Leckie Collieries Co.
Do	No. 3	Peem Coal Co.
Do	No. 32	United States Steel Corp., Coal Div.
Do	No. 214	Consolidation Coal Co.
Do	Russell Fork No. 4	Russell Fork Coal Co.
Do	Freeport[1]	Norfolk & Western Railway Co., Fuel Department
Do	No. 3	Everidge Coal Co.
Do	Thacker No. 5[1]	Norfolk & Western Railway Co., Fuel Department

TABLE 3. - Title II mines at which no imminent dangers (Sec. 203(a)) or violations of Sec. 209 under Title II were observed during an inspection (Con.)

	1953	
State	Mine	Company
Kentucky	Hendrix[1]	Consolidation Coal Co.
Do	Splint	Cornett Lewis Coal Co.
Do	New Alma No. 1	New Alma Coal Co.
Do	Hi-Cliff	Clover Darby Coal Co.
Do	Russell Fork No. 3	Russell Fork Coal Co.
Do	No. 3	Bowman Elkhorn Coal Co.
Do	Laviers No. 2	South East Coal Co.
Do	No. 1	Feds Creek Coal Co.
Do	Poplar Gap No. 1	Majestic Collieries
Do	D. J. B.	D. J. B. Collieries, Inc.
Do	No. 3	Harold Fuel Co.
Do	New Cinderella	Cinderella Coal Corp.
Do	No. 2	Phelps Collieries, Inc.
Do	Hellier No. 2	Caudill Ward Coal Co.
Do	Stone 1 and 4	Emperor Coal Company, Inc.
Do	Crossbrook	Stonega Coke & Coal Co.
Do	No. 1	Elkhorn Summit Coal Co.
Do	Sammy Branch	Sammy Branch Coal Co.
Do	Liggett	Perkins Harlan Coal Corp.
Do	Kentland No. 1	Kentland Elkhorn Coal Corp.
Do	No. 1	Lyntrough Coal Corp.
Do	No. 16	Stearns Coal and Lumber Co.
Do	Midland No. 2	Old King Mining Co.
Do	Pacemaker	Congleton Brothers Coal Co.
Do	Pine Creek	Pine Creek Coal Co.
Do	No. 1	Margin Coal Co.
Do	Goode	Goode Mining Co.
Do	No. 2	Fred G. Morgan
Do	No. 5	Mary Gail Coal Co.
Do	Hignite	Hignite Coal Co.
Do	No. 3	Pfoff & Howard Coal Co.
Do	Wallins	Kentucky Cardinal Coal Co.
Do	Fighting Gap	Harlan Fuel Co.
Do	Liggett	Perkins Harlan Coal Co.
Do	No. 4	Williams Coal Co.
Do	No. 13	Bell & Zoller Coal Co.
Do	Pleasant View	West Kentucky Coal Co.
Do	Dawson Collieries	Dawson Collieries, Inc.
Do	No. 21	The United Electric Coal Co.
Do	Coiltown	Coiltown Mining Co.
Do	Red Bud	Charleston Sixth Vein Collieries
Do	Franklin	Franklin Coal Co.
Do	Lavada	Lavada Coal Co.
Maryland	Ocean No. 1	Consolidated Fuel Co., Inc.
Missouri	Ol'Elliott	Moberly Fuel Co., Inc.
Do	Baiotto	Billy Creek Coal Co.
Do	No. 8	Corrigan Coal Co.
Do	New Black Diamond	New Black Diamond Coal Co.

TABLE 3. - Title II mines at which no imminent dangers (Sec. 203(a)) or violations of Sec. 209 under Title II were observed during an inspection (Con.)

1953

State	Mine	Company
Missouri.........	Klondike	Mosby Coal Co., Inc.
Do...........	Perry Rice	Perry Rice Coal Co.
Do...........	Blacksmith	Blacksmith Coal Co.
Do...........	Macey	Ashford Coal Co.
Montana..........	Keene No. 2[1]	Blair-Collins Co.
Do...........	Klein No. 2	Republic Coal Co.
New Mexico.......	Koehler Nos. 1 & 2[1]	St. Louis, Rocky Mountain & Pacific Co.
Do...........	Brilliant No. 2[1]	Do.
Do...........	Van Houten No. 6[1]	Do.
Ohio.............	Piney Fork No. 1	Hanna Coal Co.
Do...........	Martins Ferry[1]	Consumers Mining Co.
Do...........	No. 5	The Merrick Coal Co.
Oklahoma.........	Carbon No. 5[1]	Lone Star Steel Co.
Do...........	McCurtain[1]	Do.
Pa. (anth.)......	Kidney Slope	Bird Mining Co.
Do...........	North Mahanoy Slope	Bres Contracting Co., Inc.
Do...........	Connell	Bernice White Ash Coal Co.
Do...........	No. 3 Slope	Brunetti Coal Co.
Do...........	No. 91 Slope	Steve J. Bilko Coal Co.
Do...........	No. 58 Slope[1]	Biscontini and Sons Coal Co.
Do...........	Madeira Colliery	John Conlon Coal Co.
Do...........	Johnson Colliery	DeAngelis Coal Co.
Do...........	Hunter Tunnel	Drift Contracting Co.
Do...........	No. 3 Slope	Dancott Coal Co.
Do...........	Audenried Colliery	Glen Alden Coal Co.
Do...........	Empire-Kidder Coll. (Empire #4 Shaft)	Do.
Do...........	Truesdale Colliery (No. 9 Shaft)	Do.
Do...........	Gaylord Colliery	Gaylord Coal Co.
Do...........	Powderly	Gillen Coal Mining
Do...........	Empire-Kidder Coll. (Kidder Slope)	Glen Alden Coal Co.
Do...........	Huber Colliery	Do.
Do...........	Packer No. 5 Coll.	Gilberton Coal Co.
Do...........	No. 14 Slope (Laflin)	Greenwood Mining Co.
Do...........	No. 30 Drift	Gianforcaro Coal Co.
Do...........	Wanamie Colliery	Glen Alden Coal Co.
Do...........	Avondale Colliery	Do.
Do...........	Hammond Colliery	Hammond Coal Co.
Do...........	Harry E Shaft	Harry E Coal Co.
Do...........	Coal Brook Colliery	The Hudson Coal Co.
Do...........	Heidelberg Colliery	Heidelberg Coal Co.
Do...........	Gravity Slope	The Hudson Coal Co.
Do...........	Boston, Loree Coll.	Do.
Do...........	Pine Ridge Colliery	Do.
Do...........	Baltimore Colliery	Do.
Do...........	Delaware Colliery	Do.

TABLE 3. - Title II mines at which no imminent dangers (Sec. 203(a)) or violations of Sec. 209 under Title II were observed during an inspection (Con.)

	1953	
State	Mine	Company
Pa. (anth.).......	Coal Creek Slope	Indian Head Coal Co.
Do...........	Indian Head Colliery	Do.
Do...........	Buck Mountain mine Eckley Colliery	Jeddo-Highland Coal Co.
Do...........	Drifton Colliery	Do.
Do...........	Deringer Colliery	Do.
Do...........	Stockton Colliery No. 3 Slope	Do.
Do...........	Jeddo No. 24 Slope	Do.
Do...........	Schooley Colliery	Knox Coal Co., Inc.
Do...........	Nos. 1 & 2 Slopes	Kingston Mining Corp.
Do...........	Dorrance Colliery	Lehigh Valley Coal Co.
Do...........	Wyoming #8 Slope	Do.
Do...........	Henry Shaft, Henry Colliery	Do.
Do...........	No. 18 Slope	Labonoski Coal Co.
Do...........	Fuller Slope	Maltby Coal Co.
Do...........	No. 67 Slope	Moffat Coal Co.
Do...........	Nos. 1 & 2 Slopes	Michael Mining Co.
Do...........	Erie Colliery	Motley Coal Co.
Do...........	Molinski Colliery	Molinski Coal Co.
Do...........	No. 9 Colliery	Number 9 Coal Co.
Do...........	No. 1 Slope[1]	Newport Excavating Co.
Do...........	No. 6 Colliery	Number 9 Coal Co.
Do...........	No. 2 Slope[1]	Newport Excavating Co.
Do...........	No. 11 Slope	Number 11 Slope Coal Co.
Do...........	Florine Colliery	Old Forge Coal Co.
Do...........	Maple Hill Colliery	Philadelphia & Reading Coal & Iron Co.
Do...........	East Boston	Pringle Coal Co.
Do...........	No. 3 Tunnel	Penag Coal Co.
Do...........	No. 11 Slope	Ploskonka Coal Co.
Do...........	Alaska Colliery	Philadelphia & Reading Coal & Iron Co.
Do...........	Oak Hill Colliery	Do.
Do...........	No. 14 Drifts	Plains-Hilldale Coal Co.
Do...........	Pyne	Pyne-Taylor Co., Inc.
Do...........	No. 2 Summit Slope, Locust Gap Colliery	Philadelphia & Reading Coal & Iron Co.
Do...........	Taylor Shaft	Pyne-Taylor Co., Inc.
Do...........	Hoyt Shaft, Ewen Coll.	Pennsylvania Coal Co.
Do...........	Archbald Slope No. 184	Rogers Brothers
Do...........	Renninger Colliery	Renninger Coal Co.
Do...........	Rushbrook Slope	Rushbrook Coal Co.
Do...........	No. 2 Shaft Colliery	Russell Mining Co., Inc.
Do...........	No. 2 Shaft, #7 Colliery[1]	Susquehanna Collieries Division, The M. A Hanna Co.
Do...........	Powder Mill Slope	Sobleskie Coal Co.
Do...........	Robinson Slope	Simpson Coal Co.
Do...........	Pennsylvania #1 Slope	Snyder Coal Co.
Do...........	Nos. 2, 7, & Rex Slopes	Sarf Coal Co.

TABLE 3. - Title II mines at which no imminent dangers (Sec. 203(a)) or violations of Sec. 209 under Title II were observed during an inspection (Con.)

1953		
State	Mine	Company
Pa. (anth.)......	Glen Burn Colliery	Susquehanna Collieries Division, The M. A. Hanna Co.
Do...........	Saint Clair Colliery	The Saint Clair Coal Co.
Do...........	No. 16 Slope, No. 7 Colliery1/	Susquehanna Collieries Division, The M. A. Hanna Co.
Do...........	Schneck Colliery	T. W. Schneck Coal Co.
Do...........	North Shaft, No. 7 Colliery	Susquehanna Collieries Division, The M. A. Hanna Co.
Do...........	Glen Lyon Colliery	Do.
Do...........	Sussex Slopes	Sussex Coal Co.
Do...........	Hyde Park	West Slope Coal Corp.
Do...........	No. 15 Slope	West Exeter Coal Mining Co.
Do...........	So. Wilkes-Barre Colliery	Glen Alden Coal Co.
Do...........	No. 4 Slope	Mazzoni Coal Co.
Do...........	Cayuga, Storrs Colliery	Moffat Coal Co.
Do...........	Woodward Colliery	Glen Alden Coal Co.
Do...........	Humboldt Colliery	Lattimer Coal Corp.
Do...........	Maysville No. 2 Slope	Susquehanna Collieries Division, The M. A. Hanna Co.
Do...........	Primrose Slope	Peca Coal Co.
Do...........	No. 10 Slope	Ardoline Coal Co.
Do...........	No. 10 Slope	Northwest Coal Co., Inc.
Do...........	Bell Mountain Slope	Rogers
Do...........	No. 2-A Slope1/	Newport Excavating Co.
Do...........	Kirmar Slope1/	Biscontini and Sons Coal Co.
Do...........	Capone Colliery	Sam Capone Coal Co.
Do...........	Loomis Colliery	Glen Alden Coal Co.
Do...........	John Veith Shaft	Phoenix Park Coal Co.
Do...........	Buttonwood Colliery	Glen Alden Coal Co.
Do...........	Packer Colliery	Duryea Anthracite Co.
Pa. (bit.).......	No. 1	Acosta-Gray Co.
Do...........	No. 3	Apple Coal Mining Co.
Do...........	Victory No. 2	Benscreek Coal Co.
Do...........	Eureka No. 35 Upper	Berwind-White Coal Mining Co.
Do...........	No. 74	Bethlehem Mines Corp.
Do...........	Blue Valley	Blue Valley Coal Co.
Do...........	Stonycreek No. 2	Cable Coal Co.
Do...........	Cambria No. 4	Cambria Fuel Co.
Do...........	Cambria No. 6	Do.
Do...........	Cambria Mills No. 2	Cambria Mills Coal Co.
Do...........	Victor No. 17	Cherry Tree Coal Co.
Do...........	Sal No. 1	Coal Mining Company of Graceton, Inc.
Do...........	DuShan Nos. 5 and 7	Dugan Coal Mining Co.
Do...........	DuShan No. 14	Do.
Do...........	Penn No. 9	Elliott Coal Mining Co.
Do...........	Gahagen No. 6	Gahagen Coal Co.
Do...........	Susquehanna No. 1	Gallaher Coal Co.
Do...........	Haws Shaft	Haws Refractories Co.

TABLE 3. - Title II mines at which no imminent dangers (Sec. 203(a)) or violations of Sec. 209 under Title II were observed during an inspection (Con.)

1953

State	Mine	Company
Pa. (bit.).......	Hughes No. 2	C. A. Hughes and Co.
Do...........	Lilly No. 3-A	Do.
Do...........	Imperial Keystone	Imperial Coal Corp.
Do...........	Imperial Moshannon No. 1[1]	Do.
Do...........	Portage No. 4	Johnstown Coal & Coke Co.
Do...........	Bird No. 1	Kelso Coal Co.
Do...........	D. & M. No. 1	D. & M. Kephart Coal Co.
Do...........	Kniseley No. 10	Kniseley Coal Co.
Do...........	Kyler No. 4	Kyler Coal Co.
Do...........	Lingle No. 3	Lingle Coal Co.
Do...........	Lingle No. 7	Do.
Do...........	Loyal Hanna No. 6	Loyal Hanna Coal & Coke Co.
Do...........	Maxton Slope No. 1	Morrisdale Coal Mining Co.
Do...........	Glenmar No. 1	Moshannon-Smithing Coal Co.
Do...........	Rowles No. 7[1]	North American Refractories Co.
Do...........	Forrest No. 3	North Fork Coal Co.
Do...........	No. 1[1]	Patton Clay Manufacturing Co.
Do...........	Paul	V. R. Paul Coal Co.
Do...........	Hiyasota No. 2	Penn Smokeless Fuel Co.
Do...........	No. 10	Pennsylvania Coal & Coke Corp.
Do...........	Ponfeigh Pine Hill	Pine Hill Smokeless Coal Co.
Do...........	Sonman No. 2	W. H. Piper & Co., Inc.
Do...........	R. D. & T. No. 2	R. D. & T. Coal Co.
Do...........	Reitz No. 3 Lower	Reitz Coal Co.
Do...........	Reitz No. 4	Do.
Do...........	Reitz No. 5	Do.
Do...........	No. 1	Rich Hill Coal Mining Corp.
Do...........	No. 3	Do.
Do...........	No. 4	Do.
Do...........	No. 5	Do.
Do...........	Richland No. 3	Richland Coal Co.
Do...........	Kent No. 2-A	Rochester & Pittsburgh Coal Co.
Do...........	Kent No. 4	Do.
Do...........	Kent No. 5	Do.
Do...........	Kent No. 9	Do.
Do...........	Helvetia[1]	Do.
Do...........	Rockhill No. 9	Rockhill Coal Co.
Do...........	North Point	St. Marys Sewer Pipe Co.
Do...........	Troxell No. 2	Scott Brothers Coal Co.
Do...........	Scurfield No. 2	Scurfield Coal Co.
Do...........	Shuster No. 1	Shuster Coal Co.
Do...........	Springfield No. 4	Springfield Coal Corp.
Do...........	Sterling No. 1	Sterling Coal Co.
Do...........	Sterling No. 6	Do.
Do...........	Stone Bridge	Stone Bridge Coal Co.
Do...........	Swank No. 6	Hiram Swank's Sons
Do...........	Harrison No. 2	The Saxman Coal & Coke Co.
Do...........	Saxman "E" No. 2	Do.

TABLE 3. - Title II mines at which no imminent dangers (Sec. 203(a)) or violations of Sec. 209 under Title II were observed during an inspection (Con.)

	1953	
State	Mine	Company
Pa. (bit.)	Thompson No. 1	George Thompson
Do	Orchard No. 5	Woolridge Coal Co.
Do	Pheasant Hollow	Worthville Coal Co.
Do	Adamsburg	Adamsburg Coal Co.
Do	Springdale	Allegheny-Pittsburgh Coal Co.
Do	No. 51	Bethlehem Mines Corp.
Do	Coal Hollow No. 2	Bowersox Coal Co.
Do	Pennsy	Bowie Coal Co.
Do	Bowman No. 2[1/]	Bowman Coal Co.
Do	Wildwood	Butler Consolidated Coal Co.
Do	Carpentertown[1/]	Carpentertown Coal & Coke Co.
Do	Center	Center Coal Co.
Do	Coyer No. 3	I. E. & Walter Coyer Coal Co.
Do	Frederick No. 1	Davidson-Connellsville Coal & Coke Co.
Do	Harwick[1/]	Duquesne Light Co.
Do	Melcroft	Eastern Gas & Fuel Associates, Coal Div.
Do	Crawford No. 11	Galiardi Coal & Coke Co.
Do	Alice	Glass Run Coal Co.
Do	Dunkard No. 2[1/]	Island Coal Co.
Do	Rovella	Kerry Coal Co.
Do	Foster Nos. 6 and 8	Leechburg Mining Co.
Do	Haas	Do.
Do	Mary Elizabeth	Mary Elizabeth Coal Co.
Do	Black Hollow	Mateer Coal Co.
Do	Mon-Ark No. 5	McCartney Coal Co.
Do	Poland No. 1	Molnar Brothers Coal Co.
Do	No. 1	North Sewickley Coal Co.
Do	Westland	Pittsburgh Coal Co.
Do	Donley	Preston By-Products Coal Co.
Do	Donley No. 3	Do.
Do	Old Eagle	Rathgeb and Gorr Coal Co.
Do	Agnes	Republic Steel Corp.
Do	Banning No. 3[1/]	Do.
Do	Indianola	Do.
Do	Russellton	Do.
Do	Yatesboro No. 5	Rochester & Pittsburgh Coal Co.
Do	Marchand	S & U Coal Co.
Do	Loyal	Seanor Mining Co.
Do	Collier[1/]	United States Steel Corp., Coal Division, Frick District
Do	Colonial Plant	Do.
Do	Karen[1/]	Do.
Do	Kyle	Do.
Do	Leisenring No. 3[1/]	Do.
Do	Maxwell[1/]	Do.
Do	Ronco[1/]	Do.
Tennessee	Log Mountain	Blue Diamond Coal Co.
Do	Hickey	Block Coal & Coke Co.

TABLE 3. - Title II mines at which no imminent dangers (Sec. 203(a)) or violations of Sec. 209 under Title II were observed during an inspection (Con.)

	1953	
State	Mine	Company
Tennessee	Coal Valley	Tennessee Consolidated Coal Co.
Do	A B C	A B C Coal Co.
Do	No. 1	New River Coal Co.
Do	Regal	Mahan-Ellison Coal Corp.
Do	No. 2	Virginia-Jellico Coal Co., Inc.
Do	Anthras	Block Coal & Coke Co.
Do	No. 3	Tennessee Coal Co.
Do	No. 7	Fentress Coal & Coke Co.
Do	Rich Mountain No. 6	Pruden Coal & Coke Co.
Do	Straight Fork	Straight Fork Coal Co.
Utah	Clear Creek	Independent Coal & Coke Co.
Do	Geneva	Columbia-Geneva Steel Division, United States Fuel Co.
Do	Rains No. 2	Hi-Heat Coal Co.
Virginia	Roda No. 3	Stonega Coke and Coal Co.
Do	Roda No. 5	Do.
Do	Meade No. 2	Clinchfield Coal Corp.
Do	Buchanan County No. 5	Buchanan County Coal Corp.
Do	Buchanan County No. 3	Do.
Do	No. 9	Clinchfield Coal Corp.
Do	No. 10	Do.
Do	Tacoma	Ruth Elkhorn Coals, Inc.
Do	Lamplighter No. 1	Woodside Mines, Inc.
Do	No. 3	Lambert Coal Co.
Do	No. 1	Page Pocahontas Coal Corp.
Do	No. 2	Banner Fuel Co.
Washington	Jones	B & R Coal Co.
West Virginia	No. 1	Gray Eagle Coal Co.
Do	Ashland No. 6	Ashland Coal & Coke
Do	No. 17 Top1/	Red Jacket Coal Corp.
Do	Dehue	Youngstown Mines Corp.
Do	Jacobs Fork 3 and 4	Jacobs Fork Pocahontas Coal Co.
Do	Montcoal No. 1	Armco Steel Corp.
Do	Kopperston No. 2	Eastern Gas & Fuel Associates, Coal Div.
Do	Page No. 4	Do.
Do	Marfork	Truax-Traer Coal Co.
Do	Emily	Warner Collieries Co.
Do	Pinnacle North & South	America Coal Co., Allegany County
Do	Alaska No. 7	Alaska Coal Co.
Do	No. 5	Red Jacket Coal Corp.
Do	Main Alma	Dayton Coal Co.
Do	No. 6	Valley Camp Coal Co.
Do	Timtony	Left Fork Coal Co.
Do	No. 3	Vera Pocahontas Coal Co.
Do	No. 32	Red Jacket Coal Corp.
Do	Quinwood No. 2	Imperial Smokeless Coal Co.
Do	Junior No. 9	Red Jacket Coal Corp.

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TABLE 3. - Title II mines at which no imminent dangers (Sec. 203(a)) or violations of Sec. 209 under Title II were observed during an inspection (Con.)

1953		
State	Mine	Company
West Virginia....	Ben Creek No. 1	Gay Mining Co.
Do.	No. 6	Algoma Coal & Coke
Do.	No. 1	Standard Alma Coal Co.
Do.	No. 5	Red Parrot Coal Co.
Do.	No. 31	Pocahontas Fuel Co.
Do.	Coaldale	Do.
Do.	No. 7	Lorado Coal Mining Co.
Do.	Route No. 6	Royalty Smokeless
Do.	Cedar Grove	Cedar Grove Coal Co.
Do.	No. 1	Alma Coal Co.
Do.	No. 8	Leckie Smokeless Coal Co.
Do.	No. 3	Elk Creek Coal Co.
Do.	United Gas No. 1	Truax-Traer Coal Co.
Do.	Huff Mountain	Redyard Coal Co.
Do.	No. 9	Arlington Pocahontas Coal Co.
Do.	No. 3	Do.
Do.	Tierney No. 2	Premier Pocahontas Co.
Do.	Kopperston No. 1	Eastern Gas & Fuel Associates
Do.	Donegan No. 12	Maust Coal & Coke Co.
Do.	Arlington No. 1	Arlington Pocahontas Coal Co.
Do.	Montcoal No. 5	Armco Steel Co.
Do.	A	Allied Chemical & Dye Corp.
Do.	B	Do.
Do.	Acme 5 Block	Truax-Traer Coal Co.
Do.	Peach Creek Chilton	Jewell Ridge Coal Corp.
Do.	No. 6-A	Imperial Colliery Co.
Do.	Black Eagle	Jones & Laughlin Steel Corp.
Do.	McGregor No. 6	Amherst Coal Co.
Do.	Sagamore No. 11	Pocahontas Fuel Co.
Do.	No. 102	The Warner Collieries
Do.	No. 1	Midland Coal Co.
Do.	No. 3[1]	Red Bird Mining Co.
Do.	No. 4	Ridgeview Coal Co.
Do.	No. 4	Vera Pocahontas Coal Co.
Do.	Brule No. 3	Brule Smokeless Coal Co.
Do.	Lake Superior No. 3	Lake Superior Coal Co.
Do.	Indian Ridge No. 6	United Pocahontas Coal Co.
Do.	Wyco	E. C. Minter Coal Co.
Do.	No. 5	Panther Coal Co.
Do.	Lake Superior No. 4	Lake Superior Coal Co.
Do.	Tierney No. 2	Premier Pocahontas Coal Co.
Do.	Hernshaw	Electro-Metallurgical Co.
Do.	Kingston No. 9	Allied Chemical & Dye Corp.
Do.	No. 6[1]	United States Steel Corp., Coal Division
Do.	No. 10[1]	Do.
Do.	No. 9[1]	Do.
Do.	No. 3[1]	Do.

TABLE 3. - Title II mines at which no imminent dangers (Sec. 203(a)) or violations of Sec. 209 under Title II were observed during an inspection (Con.)

	1953	
State	Mine	Company
West Virginia....	No. 6 East[1]	United States Steel Corp., Coal Division
Do...........	No. 14-#3 Seam Portal[1]	Do.
Do...........	No. 14-#4 Seam Portal	Do.
Do...........	No. 1	Cavelier Peerless Coal Co.
Do...........	No. 1	Pine Swamp Mining Co.
Do...........	Bergoo No. 6	Pardee & Curtin Lumber Co.
Do...........	Haller	Haller Coal Co.
Do...........	Lockview No. 2	Lockview Coal Co.
Do...........	Canyon	Tasa Coal Co.
Do...........	No. 3	Fox Coal Co.
Do...........	Maplewood	Hartman Coal Co.
Do...........	Arkwright No. 1	Christopher Coal Co.
Do...........	Miller No. 1	Miller Coal Co.
Do...........	No. 36	Compass Coal Co.
Do...........	Dawson	Barnes Dawson Coal Co.
Do...........	No. 43	Tucker County Coal Co., Inc.
Do...........	Douglas No. 3	Cumberland Coal Co.
Do...........	Lake Lynn	Lake Lynn Fuel Co.
Do...........	No. 32	Consolidation Coal Co. (W. Va.)
Do...........	Peel Tree	A & R Coal Co.
Do...........	Bergoo No. 2C	Pardee & Curtin Lumber Co.
Do...........	Warm Hollow	Warm Hollow Coal Co.
Do...........	Chieftain No. 4	Pursglove Coal Service Corp.
Do...........	Carolyn No. 2	Sandy Creek Fuel Corp.
Do...........	Parsons No. 1	Parsons Coal Co.
Do...........	Bull Run	Preston County Coke Co.
Do...........	Tunnelton	Tunnelton Cooperative Coal Co.
Do...........	Bergoo #4-4B Opening	Pardee & Curtin Lumber Co.
Do...........	Borgman No. 10	Borgman Coal Co.
Do...........	Peoria	Fortney Coal Co.
Do...........	Nixon Nos. 4 and 5	Nixon Coal Co.
Do...........	Banner No. 1	Stanley Coal Co.
Do...........	Ream No. 6B	Kray Coal Co., Inc.
Do...........	East Run Air Shaft	Joanne Coal Co.
Do...........	Beech Bottom	Windsor Power House Coal Co.
Wyoming..........	Reliance No. 7	The Union Pacific Coal Co.
Do...........	Dines No. 11	Colony Coal Co.
Do...........	Rock Springs No. 8	The Union Pacific Coal Co.
Do...........	Peacock No. 12[1]	Colony Coal Co.

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[1] Mines listed under both table 2 and table 3.

Appendix I

Distribution of Coal-Mine Inspectors, December 31, 1953

Region	Office	GS-13	GS-12	GS-11	GS-9	Total	Vacancies
I	Anchorage...........	-	1	-	-	1	
II	Seattle.............	-	2	-	-	2	
IV	Denver..............	-	4	5	2	11	
	Salt Lake City......	-	1	1	1	3	
	Phoenix.............	-	-	1	-	1	
	Region IV.........						2
V	Duluth..............	-	-	1	-	1	
VI	McAlester...........	1	2	4	-	7	
VII	Birmingham..........	-	4	6	2	12	
	Jellico.............	1	2	6	1	10	
	Region VII........						2
VIII	Pittsburgh..........	1	9	9	3	22	
	Johnstown...........	1	7	4	7	19	
	St. Clairsville.....	1	3	5	4	13	
	Fairmont............	-	6	8	2	16	
	Mt. Hope............	1	14	18	7	40	
	Norton..............	-	8	14	10	32	
	Barbourville........	-	4	6	4	14	
	Vincennes...........	-	10	9	2	21	
	Wilkes-Barre........	-	10	14	3	27	
	Region VIII.......						12
	Washington, D. C....					5	
	Total	6	87	111	48	257	16

Appendix J

Miscellaneous Special Assignments

Type of job	Anchorage	Seattle	Denver	Salt Lake City	Phoenix	Duluth	McAlester	Birmingham	Jellico	Pittsburgh	Johnstown	St. Clairsville	Fairmont	Mt. Hope	Norton	Barbourville	Vincennes	Wilkes-Barre	Total
Ventilation study	0	4	1	1	0	0	0	0	0	1	1	2	0	0	0	0	8	0	18
Investigation of timbering methods	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	5
Assisting in recovery of sealed fire area	0	4	2	5	0	1	0	0	0	2	0	0	0	0	0	0	1	0	15
Officiating at first aid and mine rescue	0	1	3	0	0	1	1	2	4	12	0	0	10	0	0	0	6	0	40
Conducting gas-testing classes	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	5
Study of roof control	0	2	2	4	0	0	1	1	0	0	0	3	0	0	0	0	7	0	20
Assisting State departments	0	2	2	3	0	1	6	1	2	1	0	1	1	0	0	0	0	0	20
Study of dust conditions	0	1	0	0	0	0	0	2	0	1	0	0	0	1	0	0	1	0	6
Study of pillar-recovery methods	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5
Study of diesel locomotive underground	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Work on fires in outcrops and abandoned mines	0	0	6	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	10
Investigated coal outburst	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Investigating natural deaths and nonfatal accidents	0	0	1	1	0	1	0	2	5	18	8	4	0	2	8	1	7	18	76
Attending safety meetings	0	0	11	1	0	4	23	14	11	100	6	0	38	0	0	0	0	0	208
Cooperating with Civilian Defense Administration	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	3
Escorting visitors to mines or plants	0	0	2	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0	6
Safety inspection, noncoal mines	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
Investigating blasting practices	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	2	0	6
Investigating fires, explosions, and disasters	0	0	1	1	0	1	0	0	0	13	6	4	3	5	7	2	6	5	54
Investigating blower fans	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Assisting United States Army Engineers investigating explosion	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Electrical study	0	0	0	0	0	0	0	23	0	9	0	0	0	3	0	0	0	0	35
Experiment with device for testing E-2 methane testers	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	3
Haulage study	0	0	0	0	0	0	0	3	0	1	1	1	0	0	0	0	0	0	6
Study of underground gas - storage pools	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5
Assisting in safety movies and television and radio programs	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	2	0	5
Study of permissibility requirements under Title II	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
Foreign assignments	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	3
Assisted in drafting proposed State Mining Laws	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Testifying at hearing Federal Coal Mine Safety Board of Review	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0	4
Miscellaneous	0	1	2	2	0	2	3	5	0	12	5	1	0	1	0	1	0	1	36

Appendix K

TABLE 1. - Average injuries per million man-hours exposure (portal to portal)

Period[1]	Fatals	Nonfatals	Man-hours	Rate			Percent change		
				Fatal	Nonfatal	Fatals	Rate	Nonfatals	Rate
					BITUMINOUS				
1932-1941, incl.	10,036	447,199	6,794,840,163	1.48	65.81				
1942-1951, incl.	8,889	416,646	7,496,573,667	1.18	55.58	-11	-20	-7	-16
1952[2]	449	31,013	542,000,000	.83	57.22				
1953[2]	393	22,300	483,180,000	.81	46.15	-12	-2	-28	-19
					ANTHRACITE				
1932-1941, incl.	2,295	151,299	1,428,093,979	1.61	105.94				
1942-1951, incl.	1,537	110,234	1,374,622,564	1.11	80.19	-33	-31	-27	-26
1952[2]	99	6,005	100,380,000	.99	59.82				
1953[2]	64	4,700	71,530,000	.89	65.71	-35	-10	-22	+10

[1] Calendar year.
[2] 1952 and 1953 data subject to revision.

TABLE 2. - Number of fatal and nonfatal injuries and injuries per million man-hours exposure, portal to portal, in coal mines of the United States

Calendar year	Fatal injuries						Nonfatal injuries					
	Bituminous		Anthracite		Total		Bituminous		Anthracite		Total	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1932	958	1.77	249	1.59	1,207	1.73	39,352	72.58	16,931	107.88	56,283	80.50
1933	833	1.31	231	1.49	1,064	1.34	43,946	68.87	15,183	98.13	59,129	74.58
1934	958	1.41	268	1.50	1,226	1.43	46,982	69.39	18,577	104.15	65,559	76.63
1935	968	1.46	274	1.78	1,242	1.52	47,529	71.47	15,897	103.16	63,426	77.43
1936	1,098	1.43	244	1.56	1,342	1.45	50,514	65.62	17,026	108.80	67,540	72.91
1937	1,198	1.54	215	1.58	1,413	1.55	52,847	68.05	13,412	98.72	66,259	72.62
1938	880	1.52	225	1.94	1,105	1.59	36,794	63.47	12,842	110.85	49,636	71.36
1939	867	1.36	211	1.71	1,078	1.42	38,544	60.52	13,229	107.37	51,773	68.12
1940	1,204	1.68	184	1.50	1,388	1.65	43,994	61.28	13,782	112.55	57,776	68.75
1941	1,072	1.35	194	1.49	1,266	1.37	46,637	58.93	14,420	110.83	61,057	66.26
1942	1,245	1.41	226	1.64	1,471	1.44	53,193	60.21	13,581	98.73	66,774	65.40
1943	1,225	1.39	226	1.50	1,451	1.40	51,067	57.79	13,527	89.68	64,594	62.44
1944	1,124	1.23	174	1.06	1,298	1.20	51,253	56.02	12,438	76.05	63,691	59.06
1945	925	1.13	143	1.01	1,068	1.11	46,194	56.52	10,923	77.32	57,117	59.58
1946	795	1.09	173	1.14	968	1.10	42,817	58.81	12,533	82.65	55,350	62.93
1947	985	1.23	173	1.18	1,158	1.22	46,025	57.32	11,635	79.41	57,660	60.72
1948	862	1.15	137	.91	999	1.11	42,078	56.28	11,394	75.69	53,472	59.53
1949	494	.93	91	.83	585	.91	27,548	51.67	7,857	71.88	35,405	55.11
1950	550	.92	93	.80	643	.90	28,390	47.73	8,874	76.14	37,264	52.38
1951	684	1.16	101	.95	785	1.13	28,081	47.56	7,472	69.94	35,553	50.99
1952[1]	449	.83	99	.99	548	.85	31,015	57.22	6,005	59.82	37,020	57.63
1953[1]	393	.81	64	.89	457	.82	22,300	46.15	4,700	65.71	27,000	48.67

[1] Preliminary data subject to revision.

TABLE 3. - Underground fatality experience in the coal industry Title I and Title II mines

	1953	1952	1951
Bituminous:			
14 or less men underground:			
Fatalities	56	60	69
Percent	16.2	15.4	11.2
Rate1/	2.40	2.32	2.41
15 and more men underground:			
Fatalities	290	329	549
Percent	83.8	84.6	88.8
Rate1/	0.85	0.87	1.32
Total fatalities	346	389	618
Rate1/	0.95	0.97	1.39
Anthracite:			
14 or less men underground:			
Fatalities	11	16	8
Percent	18.3	18.8	9.0
Rate1/	16.54	17.15	8.05
15 and more men underground:			
Fatalities	49	69	81
Percent	81.7	81.2	91.0
Rate1/	1.08	1.08	1.20
Total fatalities	60	85	89
Rate1/	1.31	1.32	1.30
All coal:			
14 or less men underground:			
Fatalities	67	76	77
Percent	16.5	16.0	10.9
Rate1/	2.79	2.84	2.61
15 and more men underground:			
Fatalities	339	398	630
Percent	83.5	84.0	89.1
Rate1/	0.88	0.90	1.31
Total fatalities	406	474	707
Rate1/	0.99	1.01	1.38

1/ Per million man-hours.

Note: All figures for 1952 and 1953 subject to slight revision.

TABLE 4. - Major coal-mine disasters in the United States and number of persons killed

Calendar year	Number of major disasters	Number of persons killed
1932	6	145
1933	1	7
1934	2	22
1935	4	35
1936	5	37
1937	6	101
1938	6	84
1939	1	28
1940	6	276
1941	8	73
1942	7	132
1943	8	174
1944	4	94
1945	5	68
1946	2	27
1947	6	179
1948	6	49
1949	0	0
1950	0	0
1951	5	157
1952	2	11
1953	1	5

Appendix L

Number of Coal Mines in the United States in Which Major Improvements Were Made - 1953

Improvement item	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Georgia	Illinois	Indiana	Iowa	Kansas	Kentucky	Maryland	Michigan	Missouri	Montana	N. Mexico
1. Systematic roof-support plan adopted	1	2	0	2	-	1	0	16	2	0	3	26	0	0	2	0	0
2. Roof-support plan enforced	11	2	2	7	-	6	0	28	9	1	2	103	1	0	5	1	2
3. Use of black blasting powder discontinued	6	0	0	6	-	1	1	23	3	3	2	47	2	0	6	0	4
4. New main fan installed	22	0	0	4	-	5	0	6	0	0	0	51	0	0	1	0	0
5. Ventilation generally improved	23	2	0	8	-	7	0	38	11	5	3	152	5	0	9	2	5
6. Auxiliary blower fans removed	1	0	0	2	-	3	0	6	0	0	0	4	0	0	0	1	0
7. Preshift examinations for gas begun	8	1	0	5	-	5	0	9	5	8	0	124	3	0	11	2	0
8. Onshift examinations for gas begun	0	1	0	8	-	8	0	21	4	0	2	18	0	0	1	3	3
9. Use of water to allay dust begun	0	1	0	2	-	1	0	10	1	0	0	5	0	0	0	2	0
10. Rock dust used for first time	1	2	0	0	-	2	0	2	0	5	0	28	1	0	0	0	5
11. General improvement in rock dusting	7	2	1	4	-	24	0	63	17	1	3	197	1	0	0	1	5
12. General improvement in haulage	1	1	0	3	-	1	0	10	9	5	1	49	2	0	1	0	0
13. Installation of protective electric devices	12	2	0	4	-	5	0	25	16	5	2	100	5	0	3	5	0
14. Second opening provided	5	0	0	0	-	0	0	1	3	1	0	8	0	0	0	1	1
15. Smoking underground discontinued	1	1	0	5	-	2	0	33	11	0	0	7	3	0	0	2	2
16. Use of open lights discontinued	3	0	0	11	-	7	0	20	2	0	2	20	0	0	1	0	0

Improvement item	N. Carolina	N. Dakota	Ohio	Oklahoma	Oregon	Pa. (anth.)	Pa. (bit.)	Tennessee	Texas	Utah	Virginia	Washington	W. Virginia	Wyoming	Total - 1953	Total 1941-1953
1. Systematic roof-support plan adopted	0	0	13	0	0	1	10	40	-	3	5	0	23	0	150	2,263
2. Roof-support plan enforced	0	0	57	1	0	51	51	55	-	13	48	2	73	7	538	(1)
3. Use of black blasting powder discontinued	0	1	19	2	0	0	13	37	-	0	9	0	1	0	186	1,478
4. New main fan installed	0	0	10	2	0	0	25	37	-	2	26	0	44	1	236	2,662
5. Ventilation generally improved	0	0	37	4	0	46	43	39	-	14	48	2	85	6	589	(1)
6. Auxiliary blower fans removed	0	0	0	0	0	0	5	5	-	0	4	0	2	0	33	548
7. Preshift examinations for gas begun	0	0	11	1	0	4	47	8	-	5	20	1	75	0	353	2,902
8. Onshift examinations for gas begun	0	0	2	2	0	2	8	4	-	1	7	1	38	2	136	1,995
9. Use of water to allay dust started	0	0	1	0	0	0	0	1	-	2	3	0	9	0	38	1,003
10. Rock dust used for first time	0	0	18	1	0	0	16	2	-	0	27	2	12	0	124	1,739
11. General improvement in rock dusting	0	0	28	9	0	0	30	8	-	22	37	2	113	3	578	(1)
12. General improvement in haulage	0	0	30	3	0	31	40	5	-	9	5	0	150	3	359	(1)
13. Installation of protective electric devices	0	2	67	6	0	76	42	6	-	24	8	0	206	9	630	(1)
14. Second opening provided	0	0	8	0	0	3	4	20	-	3	1	1	8	0	68	882
15. Smoking underground discontinued	0	0	8	0	0	1	21	3	-	0	2	1	33	0	136	1,573
16. Use of open lights discontinued	0	0	8	1	0	1	10	2	-	0	10	0	21	1	120	1,380

1/ Grand totals not given for these items because further improvements may have been made in some mines previously reported as showing improvements of the same type.